

Science Education Collection

Emergency Eyewash and Shower Stations

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Overview

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The Occupational Safety and Health Administration (OSHA) mandates that an emergency eyewash and shower station be easily accessible in all workplaces in which a person could be exposed to injurious and/or corrosive substances. Emergency eyewash and shower stations should be used in the case of a laboratory or workplace accident that involves the spilling of a harmful, possibly corrosive chemical onto the body or the splashing of such a chemical into the eyes. Eyewash and shower stations are not, however, a replacement for proper protective equipment (PPE), including laboratory coats and protective eyewear, which should always be worn when handling hazardous chemicals. For proper selection of PPE, refer to your organization's Environmental Health & Safety (EHS) office.

Procedure

1. Eyewash

1. Uses
 1. Emergency eyewash stations use water to flush injurious or corrosive materials from the eyes in the case of an accident
2. Specifications
 1. The emergency eyewash should be located within 10 seconds walking time from the location that eye contamination may occur. There should be no obstacles blocking the path to the eyewash, including but not limited to doors. The eyewash must also be located on the same floor as the area containing the hazard.
 2. The emergency eyewash station requires potable water as its water source.
 3. The temperature of the eyewash water is to be maintained between 60 °F and 100 °F (16 °C - 38 °C).
 4. The water should be able to maintain a flow rate of at least 0.4 gallons per minute for at least 15 minutes, with a flow velocity low enough so as not to damage the eyes of the user.
 5. The eyewash should be able to be opened manually within one second, and water should be able to remain flowing until it is turned off by the user.
3. Maintenance
 1. Eyewash stations are to be inspected yearly by an Environment Health and Safety officer.
 2. Lab personnel should inspect the emergency eyewash station weekly, running water for 3 minutes, to ensure proper working order and eliminate buildup of sedimentation in the eyewash. A logbook documenting the weekly inspections should be maintained.
4. Operation

The following steps should be used to operate the emergency eyewash in the case of an emergency:

 1. Go immediately to the eyewash station in the case of harmful chemical exposure to the eyes. No time should be wasted in getting to the eyewash as the first few seconds of exposure could cause irreversible damage to the eyes.
 2. Push the eyewash lever to start the flow of the water.
 3. Hold the contaminated eyes open with fingers and submerge eyes in the water stream for a minimum of 15 minutes. Roll eyes around to ensure thorough flushing of the entire eye area.
 4. If contacts are worn, do not stop to remove them before flushing the eyes with water. Instead, remove contacts while the eyes are being flushed with water.
 5. Seek medical attention.

2. Lab Shower

1. Uses
 1. Emergency shower stations use water to flush injurious or corrosive materials from the body in the case of an accidental chemical spill.
2. Specifications
 1. The emergency shower should be located within 10 s walking time from the location that body contamination occurs. There should be no obstacles blocking the path to the shower, including but not limited to doors. The shower must also be located on the same floor as the area containing the potential hazard.
 2. The water source of the shower must be potable water.
 3. The temperature of the water is to be maintained between 60 °F and 100 °F (16 °C - 38 °C).
 4. The water should be able to maintain a flow rate of at least 20 gallons per minute for at least 15 minutes.
 5. The shower should be able to be turned on in a maximum of one second and remain on until the user turns it off.
 6. The height of the shower water column should be between 82 inches and 96 inches.
 7. The diameter of the water column should be at least 20 inches at 60 inches above the floor.

8. An enclosure for the shower should be at least 34 inches in diameter. Enclosures are not required on laboratory emergency showers.
3. Maintenance
 1. Shower stations are to be inspected annually by your organization's Environment Health and Safety officer.
 2. Lab personnel should inspect the emergency shower station weekly to ensure proper working conditions. A logbook documenting the weekly inspections should be maintained.
4. Operation

The following steps should be used to operate the emergency shower station in the case of an emergency:

 1. Go immediately to the shower station in the case of harmful chemical exposure to the body. No time should be wasted in getting to the shower as the first few seconds of exposure could cause irreversible damage.
 2. Remove any contaminated clothing, shoes, or other attire. Do NOT be bashful about removing clothes. If the primary location of spilled chemicals is to a clothed portion of the body, they will be saturated with chemicals. Remove clothes carefully if they will come into contact with unexposed areas of body. In some cases, it may be more appropriate to cut clothes for prompt, safer removal.
 3. Pull the shower lever to start the flow of the water and flush the affected area with water for at least 15 minutes.
 4. Seek medical attention.

Applications and Summary

In the case of a chemical spill or splash affecting the body or eyes, the contaminated individual should waste no time accessing an emergency eyewash or shower station. If the exposed person is unsure of the dangers of the chemical spill, it is always advisable to use the eyewash or shower. However, in order to prevent such accidents, proper lab attire should always be worn when handling hazardous substances. Lab personnel should be knowledgeable about the materials they are using and be trained on proper handling techniques.

References

1. American National Standard for Emergency Eyewash and Shower Equipment," American National Standards Institute, Inc./ International Safety Equipment Association, ANSI/IEA Z358.1, 2014.