

Supervisor Instruction

Introduction

OSHA standards require that emergency eyewash or eyewash and shower be provided whenever employees are exposed to corrosive materials. OSHA 1010.151(c): Where the eyes or body of any person may be exposed in injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use.

How to Determine if Emergency Shower/Eyewash is required

A three step process is used to determine if emergency shower/eyewash stations are required:

1. Identify the hazards
2. Determine the exposure
3. Evaluate based on identified hazards and exposure to determine if emergency showers/eyewashes are need and if so what type would provide the best dilution system.

Identify the Hazards

Determine if a material is hazardous to the eyes or skin:

- Usually, pH will be used; however other information, such as material safety data sheets and various references can be used. Bioenvironmental engineering is the center expert. Bio surveys should be used.
- The strength of an acid or basic solution is commonly reported as pH, which can be measured with pH paper or a pH meter and can range from 0 (very acidic) to 14 (very basic or alkaline).
- A material with a pH of 0 or less than or equal to 2, or greater than or equal to 11 to 14 will, at the very least, cause significant eye irritation and may cause permanent damage or blindness.
- For skin, a pH less than or equal to 1 or greater than or equal to 12 is considered hazardous. However, a pH between 2 and 11 (or between 1 and 12 for skin) does not necessarily mean a material will not cause injury (certain materials with pH between 2 and 11 may be extremely

damaging to the eyes and skin). Alkaline solutions tend to be more damaging to the eyes and skin than acidic solutions.

- Consult the material safety data sheet (MSDS) and/or label of the substance in question for pH and health effects.
- If the MSDS indicates irritation only, an eyewash or eyewash and shower may not be required.
- If the MSDS states that burns, corneal damage, blindness or eye damage may occur, the material would be considered hazardous and eyewash/showers must be provided.
- The NIOSH Pocket Guide to Chemical Hazards can also be used. Besides listing physical and chemical properties and health hazards or may substances, the guide also makes recommendations for PPE and may state “Provide: eyewash and/or quick drench”.
- If there is a question use your Bioenvironmental Engineering survey or contact Bioenvironmental Engineering for assistance.

Determine Exposure

- Determine whether the hazardous material can contact the eyes or skin
- Look at the potential for the material to be splashed or getting into the eyes or on the skin
- When looking at skin contact consider the quantities that could contact the skin. This will help decide if a shower is needed.
- When looking at the eyes, if the material is capable of contact, quantity is not a consideration

NOTE: All determination of exposure should be made without regard to the use of personal protective equipment. Adequate eye and face protection and protective clothing should be provided. It does not change the requirement for an eyewash or shower. In general tight-fitting goggles should be worn if eye protection is required. Face shields or safety glasses do not provide adequate protection.

Evaluate

Once you have determined if employees are exposed to hazardous chemicals and the exposure/potential exposure, you can determine if emergency showers/eyewashes are required.

Selection of Emergency Shower/Eyewash units

Emergency showers and eyewash stations

Hill Air Force Base has thousands of workers each day that work near hazardous chemicals. Although safety practices and PPE are in place chemicals splashes and spills can still happen. Knowing what to do in these kinds of situations is critical. Having the proper emergency equipment at the workplace is not only necessary, it's the law. AFOOSH 91-501 Chapter 19 requires supervisors to assess their work areas for chemical exposure/potential exposure to their employees. With the assistance of Bioenvironmental Engineering and Safety the supervisor will select an Emergency shower/eyewash unit that will work best for their area.

When are emergency showers required?

Emergency showers are specifically-designed shower heads that will provide an overhead flow of water to the entire body. It's usually activated with a pull chain that hangs from the unit itself. The shower should be equipped with a stay-open ball valve that allows water to flow continuously until it's turned off. Some models come equipped with attached eyewash. Emergency showers should be considered when there is the potential for the body to be splashed or drenched. Eyewash units can only dilute chemicals in the eyes and face. If the body can come in contact with chemicals, a shower should be used. Keep in mind the following:

- Showers put out a considerable amount of water. Showers should be equipped with drains.
- Keep electrical away from showers. If plugs need to be within 5 ft. of the shower, they need to be a GFCI.
- A person who has chemicals on their body may panic and need help. Workers should be trained on how to get themselves and their fellow workers to the shower.
- Keep in mind modesty. Chemical soaked clothes will need to come off. Shower curtains, blankets towels should be considered.

When are emergency eyewashes needed?

There are hazardous chemicals that can cause damage to the eyes and body. Exposure/Potential exposure to these chemicals will require emergency eyewash/shower. Examples are Chlorine, Acids, Alkalis, Ammonia or Corrosives, these are very damaging and eyewash/showers will need to be immediately available. OSHA will require specific eyewash requirements to be met with many of these chemicals.

Many shops have less serious chemicals that are more of an irritant. These chemicals should also be diluted with eyewashes. The use of eyewash bottles and less costly systems can be used.

VERY IMPORTANT: Supervisors should coordinate any new/modified emergency shower/eyewash with Safety and Bioenvironmental Engineering. There is a Hill Air Force Base Emergency Shower/Eye Wash Evaluation/Justification Team that can help you. Members are listed on this web page.

Location of Emergency Showers and Eyewashes

The location of Emergency Showers/Eyewashes is critical to ensuring the employee can start diluting the chemical they are exposed to within 15 seconds of contact. The following guidelines should be followed:

- Within 10 seconds of exposure area
- Should not have to walk through doors
- Unobstructed path
- Should not be placed where there is the potential for obstruction. We often see carts, pallet jacks, and forklifts etc, parked in front of eyewash units because there is free space.
- Should not be so close to the exposure area that the emergency shower/eyewash unit becomes contaminated with the spill/splash.
- They shall be in a conspicuously identified accessible location
- Located so they are not next to a electrical hazard
- The greater the potential for contamination the closer the unit should be to the work area

How long should the flushing last?

Medical and industrial experience has shown that the eyes and skin should be flushed for at least 15 minutes. The sooner the flushing starts, the better the chances are of eye and skin recovery. The flushing should start within 15 seconds of the chemical splash to minimize tissue damage. If the injured worker is taken directly to the hospital for first aid without flushing at the worksite, the chemical may have time to cause permanent eye or skin damage. Nasty chemicals such as acids can cause eye and skin damage very quickly. You need to understand the severity of damage the chemical can cause when deciding on the location and type of emergency shower/eyewash.

Emergency Shower and Eyewash Inspections

Inspections

- Weekly Activation of permanently-installed shower and eyewash units. Ensure surrounding area is clean and unobstructed and eyewash is properly identified. Sign off weekly inspection record. Run water long enough to ensure:
 - Water pressure and volume is sufficient
 - Orifices free of obstruction
 - No build-up of scale or rust

- Monthly Inspection
 - Weekly testing completed
 - Clean, no damage or missing parts
 - Proper signs/identification
 - No visible signs of leakage
 - Valve moves smoothly and freely to open position
 - Spray pattern 20 inches at a height of 60 inches above floor
 - Water pressure and volume adequate
 - Orifices free of obstruction
 - Employees in area properly trained in operation of unit

- Instructions and expiration date on self contained units and eyewash bottles.
- Current water change date on portable unit

Inspection Documentation

- Use the Hill AFB Emergency Shower/Eyewash Inspection record
 - Inspection criteria for weekly activation/inspection and monthly inspection
 - Units that require another inspection record such as the 244 card should place the Hill AFB Emergency Shower/Eyewash Inspection with the other inspection record so the inspection criteria are clearly identified.

Employee Training

Employees who are required to use emergency showers/eyewash must be properly trained. This training should be included in the “Employee Safety and Health Briefing”. The employee safety and health brief is documented in section IV of the Air Force Form 55.

Code References

OSHA 1910.151(c)
AFOSH 91-501 Chapter 19
ANSI Z358.1.