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# PURPOSE

The purpose of this standard is to establish the minimum requirements for emergency eyewash and safety shower equipment in locations where TI personnel might be exposed to chemical or other potential hazards.

# SCOPE

This standard applies to all TI operations that require the use of emergency eyewashes and safety showers. The provisions of this standard apply to all TI employees, suppliers, vendors, and visitors at TI sites worldwide.

Sites shall comply with all applicable local, state, and national laws, codes, and regulations related to eyewashes and safety showers. Where conflicts exist between this standard and a law, code or regulation, the more stringent requirement shall apply.

# reference documents

## TI Standard Policy and Procedure (SP&P) 04-04-01: "Environmental, Health and Safety"

## TI ESHMS 4.5.4 Records Management

## ANSI Z358.1-2009 Standard for Emergency Eyewashes and Shower Equipment

## DIN 12899-3: Emergency safety showers – Part 3

# Definitions

[TI ESH Standards Glossary of Definitions](https://sps01.itg.ti.com/sites/wwf/esh/standards/Knowledge_Bank/00.01.xlsx)

# Requirements

## General Requirements

* + 1. Sites shall establish and implement a hazard assessment process to determine the operations or tasks that require an eyewash or safety shower. The hazard assessment process shall include an assessment of the following:
       1. The type of chemicals that are utilized and the hazards they present.
       2. The path of travel from the hazard to the emergency eyewash and/or shower station.
       3. The time it would take to travel to the emergency eyewash and/or shower station if the chemical were to be in both eyes.
       4. The type of emergency eyewash and/or shower station that should be utilized for the hazard.
    2. Records of hazard assessments shall be retained in accordance with the ESH Record Retention Matrix.
  1. Emergency Eyewash and Safety Shower Locations
     1. The location of emergency eyewash and safety shower stations shall be determined based on the hazard assessment.
        1. In the case of potential exposure to corrosives, the location must take no more than 10 seconds to reach. Note: Highly corrosive chemicals may require a shorter travel time based on the hazard assessment.
        2. Locations for non-corrosive chemicals have no maximum distance requirement per this standard but must reflect the hazard assessment results.
     2. Emergency eyewashes and safety shower equipment shall remain unobstructed at all times and shall not be:
        1. Located behind doors where the hazard is corrosive; where the hazard is non-corrosive, one door can be present but the door must not be locked and must open toward the emergency fixture.
        2. Located where they may create a hazard due to electrically powered equipment or electrical panels or outlets.
        3. Located where personnel would be required to travel up or down stairs to access the emergency eyewash or safety shower.
  2. Emergency Eyewash and Safety Shower Equipment Selection and Approval
     1. Emergency eyewash equipment shall meet the following criteria:
        1. Be able to provide water to both eyes simultaneously.
        2. Permit the operator to hold open both eyelids while the eyes are in the water stream.
        3. Allow activation of equipment using a single hand motion.
        4. Nozzles shall be protected from airborne contaminants when not in use.
     2. Emergency safety shower equipment shall meet the following criteria:
        1. Allow activation of equipment using a single hand motion.
        2. Permit the operator to remove clothing while the body is in the water stream.
     3. Handheld drench hoses shall not be installed for emergency eyewash and safety shower purposes.
     4. All emergency eyewash and safety shower equipment shall be selected based on a hazard assessment and potential exposure to a person’s body, eyes, or face.
        1. Eyewash (ONLY) or eye/face-wash stations shall only be used where a limited potential risk for splash or spray is present and a full-body wash is not warranted due to the low potential risk.
     5. Portable eyewash stations (pressurized or non-pressurized containers) shall meet the requirements in 5.3.1 and have at least a 15-minute water supply.
  3. Design and Installation of Plumbed Emergency Eyewash and Safety Shower Equipment
     1. Water supply lines for eyewash and safety shower equipment shall be connected directly to an uninterruptible source of potable water with sufficient available capacity to meet the following flow and pressure requirements (note: De-ionized water is not considered acceptable for emergency eyewash and safety shower equipment):
        1. Upon installation, flow tests shall be conducted to verify capacity.
           1. The flow rate for emergency eyewash (ONLY) water supplies shall be at least 1.5 liters/minute (0.4 gallons per minute).
           2. The flow rate for emergency eye/face-wash water supplies shall be at least 6.0 liters/minute (1.6 gallons per minute).
           3. The flow rate for combination eyewash/safety showers shall be at least 60.0 liters/minute (15.9 gallons per minute).
        2. Emergency eyewash and safety shower water pressures shall be maintained at a minimum of 0.207 megapascal (30 PSI), but shall not be high enough to cause eye injury.
     2. Water shall be maintained at a temperature that does not cause injury to the eyes or body (i.e. scalding or freezing water).
     3. Emergency eyewash and safety shower equipment shall be mounted at a height appropriate for the user population. Note: Handle extensions on overhead showers may be necessary to accommodate height variations in work force personnel.
     4. Sites shall determine if hazards may be created due to water runoff from emergency eyewash or safety shower equipment. The water should be drained or otherwise managed if any of the following conditions exist:
        1. Expansion joints, access holes, or waffle floors could allow water runoff to contact persons or equipment below.
        2. Electrical systems are within the path of the water runoff.
        3. Water runoff may create a hazard during freezing weather.
     5. All valves supplying water to emergency eyewash and safety shower system equipment shall be provided with tags or labels that state a warning, in the language of the host country, prohibiting the water from being shut off. The following example label may be used:

SAFETY SHOWER WATER SUPPLY

DO NOT CLOSE THIS VALVE

NOTIFY \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

TO PROVIDE ALTERNATIVE PROTECTION MEASURES

* + 1. Eyewash and safety shower equipment shall be provided with identification signs which are visible within the area served by the unit. The area shall be lighted sufficiently for the sign and the equipment to be easily seen.
    2. Eyewashes and safety showers shall be installed such that there is adequate space for access:
       1. 1 meter (3 feet) of clear space shall be provided in front of the unit
       2. A radius of 0.4 meter (16 inches) of clear space shall be provided centering on the shower head or the eyewash bowl
  1. Alternate Protection
     1. The site shall provide a method for alternative protection for personnel during the following conditions:
        1. When emergency eyewashes and safety showers are out of service. They shall be barricaded and marked “out of service”, and directions shall be provided to the alternate (or suitable standby) equipment location.
        2. When water supplies need to be turned-off or water pressure is lost to an area that is still in operation.
        3. While working at temporary or remote locations where plumbed water service is not available.
  2. Inspection, Testing, and Repair

All emergency eyewash and safety shower equipment shall be inspected and tested at least monthly. Note: Tags at the unit may be used for this purpose.

* + 1. Testing and inspection shall ensure proper operation and include:
       1. Flushing the unit at least monthly to ensure the water source remains clear and free of odors.
       2. Verifying valves and operating levers work properly.
       3. Verifying that the spray pattern of water is adequate to effectively rinse the eyes and the body.
       4. Cleaning of the emergency eyewash or safety shower station at least monthly.
       5. Ensuring that signs and labels are in good repair and properly displayed.
    2. Emergency eyewashes and safety showers shall be repaired immediately upon discovery of damage or failure to operate.
    3. Irrigating fluids for portable eyewash stations shall be maintained according to the manufacturer's instructions or the dates on the fluid containers.
    4. Sites shall maintain shower and eyewash inspection and testing records in accordance with the ESH Records Retention Matrix.
  1. Training
     1. Employees, supervisors, contractors and visitors who could be potentially exposed to chemical hazards shall be trained in the following prior to beginning work:
        1. When and how to use an emergency eyewash or safety shower, including:
           1. Instruction that emergency eyewashes and safety showers are exclusively for emergency purposes and shall not be used for general washing.
           2. Instruction regarding the removal of clothing as required for effective irrigating of affected areas.
           3. Irrigation times.

With the exception of hydrofluoric acid (HF), eyes and body parts which have been splashed with chemical must be irrigated for 15 minutes or more.

For HF exposure, the exposed person should irrigate only until calcium gluconate can be applied.

* + - 1. Locating the primary and alternate emergency eyewashes and safety showers in the work area.
      2. How to utilize the site's emergency response protocol.
      3. How and where to report problems or defects with an emergency eyewash or safety shower.
    1. Emergency eyewash and safety shower inspection, testing and repair personnel shall be trained in the following:
       1. Verifying that the required signs and labels are in place, maintained up-to-date and are in good repair.
       2. Verifying water availability and approximate temperature.
       3. Checking the eyewash pattern (Note: a template can be ordered from the eyewash manufacturer).
       4. Measuring water quantity.
       5. Maintaining records on all inspections and repairs.
       6. Verifying that eyewash and safety shower equipment and piping are not used in a manner for which they are not designed (for example, as a fall protection tie-off point or a hanger for electrical extension cords).

# STANDARD Approval

This standard has been approved by David Thomas, TI Vice President.

# Revision history

|  |  |  |  |
| --- | --- | --- | --- |
| **Rev#** | **Date** | **Nature of Revision** | **Author/Editor** |
| A | 01/24/2008 | 2007 major periodic review; 3.1 - written program requirement removed; 3.2.a - ten second travel requirement changed to travel distance; other edits. | Janie Denmon |
| B | 05/02/2008 | 3.3 – “flushing fluid” changed to “water”; 3.7.b.6 – example language added. | Jim Evans |
| C | 04/18/2013 | 2012 major periodic review | Chris Lee |
| D | 05/12/2014 | Removed references to obsolete standard 07.01 | Chris Lee |
| E | 06/10/2014 | Corrected typo for ANSI Z358.1-2009 reference | Chris Lee |
| F | 06/01/2016 | 5.4.1.1 – Removed requirement to have 50% of all points open during testing | Matt Jones |
| G | 3/11/2020 | 5.4.7.2 – Correct error – Diameter changed to radius | Dale Moore |