Eyewash Stations and Safety Showers
Standard Operating Procedure

Dr. Art Ragauskas group safety meeting
April 2011
Definitions

• **Combination Unit:** An interconnected assembly of drenching and flushing equipment that is supplied by a single flushing fluid source.

• **Emergency (Deluge) Shower:** A device to deliver flushing fluid that utilizes a valve which remains open during use to enable the user to have water cascading over the entire body while the hands are free.

• **Eye/Face Wash:** A device used to provide fluid to irrigate and flush both the face and the eyes.

• **Eyewash:** A device used to provide tepid fluid to irrigate and flush both eyes simultaneously at a velocity low enough not to be injurious to the user.

• **Hand-Held Drench Hose:** A flexible hose connected to a water supply that is used to provide fluid to irrigate eyes, face and body area.

• **Hazardous Material:** Any substance or compound that has the capability of producing adverse effects on the health and safety of humans.

• **Personal Eyewash:** A supplementary eyewash that supports plumbed or self-contained eyewash equipment by delivering immediate flushing for less than 15 minutes.

• **Plumbed Eyewash:** An eyewash unit permanently connected to a source of potable water.

• **Tepid:** Moderately warm, lukewarm
• **Scope**
  This SOP applies throughout the Ragauskas groups’ labs at IPST @ Georgia Tech and for off-site activities performed by the group members.

• **Applicable Legislation**
  − Occupational Health and Safety Act, Industrial Establishments (Reg. 851)
The following are the key specifications from ANSI Z358.1-2004. Plumbed and self-contained emergency showers:

Emergency drenching and flushing equipment must be identified by highly visible signage

- **Plumbed and self-contained eyewash:**
  - Plumbed and self-contained eyewash units must supply at least 1.5 litres (0.4 gpm) of flushing fluid and at a velocity low enough to be non-injurious to the user.
  - At least a fifteen minute supply of flushing fluid must be available.
  - Eyewash units must supply flushing fluid to both eyes simultaneously.
  - The flushing fluid supply valve must stay open without the use of the operator's hands.
  - Nozzles must be protected from airborne contaminants. Nozzle protective device removal must be automatic (not require a separate motion by the user) when the unit is turned on.

- **Plumbed and self-contained emergency showers**
  - must supply at least 75.7 litres per minute (20 gpm) of flushing fluid at a velocity low enough to be non-injurious to the user.
  - At least a fifteen minute supply of flushing fluid must be available.
  - The flushing fluid supply valve must stay open without the use of the operator's hands.
  - Shower head height must be between 208.3 cm (82 in) and 243.8 cm (96 in) from the user's standing surface.
  - Protection from freezing or freeze protected equipment is required where the possibility of freezing exists.
  - Shower enclosures (if used) require at least a 86.4 cm (34 in) diameter unobstructed area to provide adequate space for the user.
Use

• Immediate and proper use of emergency eyewash and safety showers is essential to minimizing injury upon injurious hazardous material contact. The following guidelines should aid in minimizing injury due to contact with hazardous materials.
Eyewash Station
Eyewash Use Procedure

1. Do not panic.
2. Shout out for help to allow co-workers to assist you.
3. Proceed to the eyewash station and turn the water on.
4. Flush eyes and/or skin for at least 15 minutes. Never use home-made neutralizing solutions to flush chemicals from the body.
5. Hold eyelids open with fingers so flushing fluid can fully irrigate the eyes.
   Note: People may not always be able to flush their eyes on their own because of intense pain. Nearby helpers should be prepared to assist with holding the eyelids open. Other helpers may need to assist with keeping the person under the flushing fluid for at least 15 minutes.
6. Have someone contact emergency medical personnel at 4-2500 or 911.
7. Continue rinsing eyes until emergency medical personal arrive to assist.
8. Contact EHS and GA Tech police at 4-2500 or 911 in the event of an emergency that requires further assistance (chemical spill, explosion, et c.)
9. Notify Supervisor - Dr. Ragauskas: 404-894-9701

Please note: The emergency eye wash station is only for first aid. It is not medical treatment for chemical exposures. Make certain that you seek proper medical attention. It is important to inform the physician what you were exposed to.
Eyewash Maintenance

- Flush eyewash stations WEEKLY

The eyewashes that are standalone (attached to the faucet/water drains attached) are to be checked once per week by lab personnel and signed off on attached tag.

- Keep covers for eyewash nozzles in place to protect from dust and debris.
Maintenance

More tags can be obtained from EHS once the front and back is filled up or alternatively a ‘Word document’ can be created with the same information and posted on the wall near the sink.
Maintenance

- Make sure the eyewash and safety shower areas are unobstructed from any large equipment, gas cylinders, rolling carts, glassware surrounding sink, etc.
- Just for good measure, be sure that there is at least one working sink in every wet bench lab for handwashing. There also of course need to be paper towels and soap available.
Plumbed eyewashes, eye/face washes “...should be activated on a weekly basis long enough to sure flushing fluid is provided” according to the American National Standard Institute (ANSI) standard Z358.1 5.5.2--2004.

Eyewash should meet the following requirements:

- Unit should activate within one second and remain open
- Stream should be cold/tepid water only (<100 degrees F or 37.8°C)
- Flushing streams should rise to approximately equal heights and be non-injurious to the user
- Flushing fluid should be clear and visibly free from foreign particles
- Water nozzles should have dust covers that automatically fall off with activation
Some problems which can occur with the eyewash:

- Nozzles are clogged or broken
- Activating valve is inoperable
- Improper water pressure (either too high or too low)
- Foreign particles in bowel or basin
- Nozzle dust covers not installed or broken
- Stagnant water in lines can contain microbial hazards and/or rust
Testing eyewash
Safety Shower
Using a safety shower

- Safety shower is used by pulling on the lever.
- Immediately remove contaminated clothing. Do this while under the shower when gross contamination has occurred. The chemicals will stay on the body longer if the clothing is not removed. Have someone assist with clothing removal when possible.
- An assistant may use a fire blanket or uncontaminated article of clothing as a shield to provide privacy for someone who needs to remove their clothes while under an emergency shower, and for body coverage while seeking medical attention.
- Continue flushing the water for at least 15 minutes. Once done using, push lever back to original position and water flow will stop.
Things to keep in mind when using a safety shower:

- It is always a good idea to know exactly where the shower's water shut-off valve is located. If the unit is ever used and does not shut itself off, the shut-off valve will be needed.

- Other types of showers include a type that includes a chain that you pull where approximately 5 gallons of water is released then the unit shuts itself off.

- It is not recommended to place any electrical equipment near the unit. It may cause serious injury or even death due to electrical shock.

- Continue under the shower for 15 minutes before seeking medical attention.
Maintenance

• Area Facilities Maintenance is responsible for the testing of safety showers because most do not have water drains and it is inconvenient for lab personnel.

• This is done annually and EHS must be notified if it hasn’t been checked within a year, they will send Facilities staff to check safety showers as soon as possible.

• Eyewash/Safety shower checks are also included in comprehensive lab inspections performed by EHS that can be performed upon request.
Standard Operating Procedure for using Eyewashes and Safety Showers

For troubleshooting contact EHS: 404-894-4635

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