

# Lab Safety: Eyewear and Procedures

# Overview

- Assess the level of exposure
  - Choose appropriate equipment
- Types and specifications of eye protection
- General lab safety procedures
- In the event of an accident

# Assess level of exposure

## ■ Hazard Types

- Impact : Flying objects like chips, sand, dirt.
- Heat: Hot sparks, splash from molten metal, high temperature reactions.
- Chemicals: Splash, fumes, vapors, mists.
- Dust: Nuisance.

## ■ Type of hazard will determine necessary level of protection

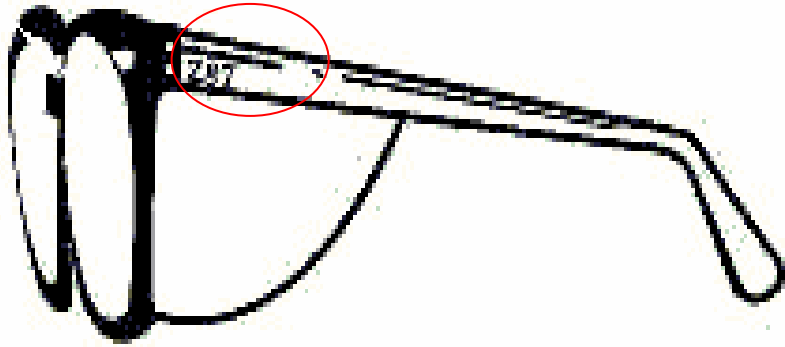
# Levels of exposure and protection

- Impact
  - Safety glasses, goggles and face shield
- Heat
  - Safety glasses, goggles and face shield
- Chemicals
  - Safety glasses when potential splash is minimal
  - Safety goggles when potential splash from hazardous materials
  - Safety goggles and faceshield when large volumes of hazardous materials are involved
- Dust
  - Goggles

# Types and specifications of eyewear: Safety Glasses

- Must comply with ANSI Z87.1-1989, American National Standard Practice for Occupational and Educational Eye and Face Protection
- Lenses that are impact resistant
  - Basic and High
- Side shields for added protection

# Safety glasses



AOSafety Tourguard

- Z87 indicates that it has met the safety requirements
- May also include manufacturer's monogram such as AOS and
- a + sign for high impact
- Basic Impact lenses must pass the “drop ball” test, a 1" diameter steel ball is dropped on the lens from 50 inches
- High Impact lenses must pass “high velocity” testing where 1/4" steel balls are “shot” at different velocities.
  - Glasses: 150 ft./sec.
  - Goggles: 250 ft./sec.
  - Faceshields: 300 ft./sec

# Types and specifications of eyewear: Safety Goggles

- Must comply with ANSI Z87.1-1989, American National Standard Practice for Occupational and Educational Eye and Face Protection
- Lenses that are impact resistant
- Chemical splash goggles should have indirect ventilation so hazardous substances cannot drain into the eye area

# Safety goggles



AOSafety goggles

- All goggle lenses are to be marked with the manufacturer's mark, Z87, and a + sign (AOSZ87+).

# Types and specifications of eyewear:

## Faceshields

- Must comply with ANSI Z87.1-1989, American National Standard Practice for Occupational and Educational Eye and Face Protection
- Windows that are impact resistant
- Face shields must be used in conjunction with safety glasses or goggles

# Faceshield



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Faceshield

–All faceshield windows are to be marked with the manufacturer's mark, Z87, and a + sign.

# General lab safety procedures

- Eye protection (laboratory safety glasses as a minimum) must be worn when any experimental and mechanical work is being conducted
- When deskwork is being conducted exclusively, safety glasses are not required, but they should be kept on if one is going back and forth between experimental and deskwork
- Contact lenses may be worn in chemical laboratories but should not be considered eye protective devices.

# General lab safety procedures

- Prescription glasses can be worn in place of laboratory safety glasses only if they are constructed from tempered safety glass and are equipped with side shields.
- Safety goggles or face shields must be worn over normal or nonsafety corrective glasses.

# In the event of an accident

- Find the nearest eyewash unit
- The first 10 to 15 seconds after exposure to a hazardous substance, especially a corrosive substance, are critical.
- It is recommended that the eyes must be flushed immediately and thoroughly for **at least** 15 minutes using a large supply of clean fluid under low pressure and preferably with the help of someone else

# In the event of an accident

- If wearing contact lenses
  - Begin eye irrigation immediately and remove contact lenses as soon as practical.
  - Do not delay irrigation while waiting for contact lens removal.
  - Let the eyewash water remove the lenses and irritant for you.

**Questions?**