

EYE SAFETY

The eye is probably the most vulnerable portion of the body surface from an injury point of view. Eye injuries are much slower to heal and may not fully recover. Foreign bodies present the most common danger to the eye. Particles can lodge on the surface of the eye where they are generally irritating, or sharp objects can penetrate deep into the eye where they can cause no pain. Certain types of particles can be extremely damaging.

In the laboratory, flying glass, possibly from an exploding test tube flask, as well as metal objects which may penetrate the eye, can cause severe eye injury or result in loss of sight.

The eye reacts differently to different chemical agents. Caustic material (sodium hydroxide, ammonium hydroxide, potassium hydroxide) in the eye is much more hazardous than an acid (sulphuric acid, hydrochloric acid, nitric acid) because the eye has no defense to the base. The caustic material readily penetrates into the eye tissues. Tears are naturally slightly basic and therefore will act as a slight buffer to acids.

Laboratory procedures that can produce liquid droplets or splashes include pouring, stirring, heating, and the reacting of chemicals. Cleaning of glassware and breaking of containers can also cause chemicals to reach the eyes.

Splash resistant safety goggles are the only protective device adequate for general eye protection in the school laboratory. Goggles can be worn over most prescription eyeglasses. **Prescription lenses should not be regarded as safety glasses! They are not adequate for eye protection in the laboratory!** Many splashes and particles approach the eye from an angle or from underneath, so would not be stopped by corrective lenses even if the glass was strong enough. It is estimated that a third of all eye accidents injuries are caused by another person or source, not what the injured is doing. **If worn, contact lenses must be covered with safety goggles!**

It has been argued that contact lenses offer protection from damage by particles and chemicals. Nothing could be more erroneous! An eye that has received a chemical splash should be washed thoroughly with water until the material has been completely washed out. This usually takes 15 minutes. If contact lenses are in the affected eye, the chemical may be drawn under the lens by capillary action where it cannot be washed away with water. Contact lenses should be discouraged or prohibited in the school laboratory. Students should wear eyeglasses covered by chemical goggles.

If all protective measures fail and a student or teacher gets a corrosive chemical in the eye, an eyewash device is available for immediate and thorough washing of the eye. Use the closest eyewash device. If your partner gets a chemical splashed in their eyes, get the eye wash bottle for them and help lead them to a sink. With alkali (basic) splashes, the first 10 – 30 seconds is the most critical.

Name:

EYE SAFETY QUESTIONS

1. Disregarding temporary or permanent impairment of your vision, why is injury to eye tissue more serious than it is to other tissue?
2. List three sources of potential hazard to your eyes when working in the laboratory.
3. Which is more dangerous to eye tissue, concentrated acid or caustic material such as Draino?
4. Why should people who wear prescription lenses also wear safety goggles?
5. How do contact lenses increase the risk of eye tissue damage once hazardous liquid has been splashed into the eye?
6. If all protective measures fail and a student or teacher gets a corrosive chemical in the eye, what should be done?
7. Where is the nearest eyewash station located?
8. How quickly should you get to an eyewash station if a caustic material gets into your eyes?