

TOOLBOX TALKS

Welding Safety – Eye Protection

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TOPIC: Welding Safety – Eye Protection

There are many hazards associated with welding operations. In fact, over 25% of welding mishaps are injuries to the eye(s). Arcing electricity produces three forms of powerful radiation: infrared, visible light and ultraviolet. Each category presents a unique set of hazards.

Infrared (IR)

Infrared energy, or heat, is low frequency energy that is not visible. Depending on the wavelength, infrared light is most damaging to the surface of the eye (cornea) and lens. Overheating of the lens leads to cataract formation (clouding of the lens).

Visible

Visible light is light that you can see. When you see the bright white welding arc you are only sensing the visible light region (even though there is infrared and ultraviolet light being emitted as well). This intense light can damage the sensing area (retina) at the back of the eye.

Ultraviolet (UV)

Within the scope of welding, UV light is the most damaging radiation and is absorbed primarily by the cornea. Eyes can be exposed to an enormous amount of harmful UV light in a very short period of time through unprotected viewing of the arc. Within seconds you can give your corneas severe burns without even knowing it. The result is photokeratitis (more commonly referred to as ‘Welder’s Flash’ or ‘Arc Eye’). Symptoms usually flare up several hours after exposure. Symptoms include light sensitivity, reddening and pain described as sandpaper behind the eyelids. Fortunately, the eyes typically recover from this burn.

Due to the hazards listed above, a welder’s helmet must always be worn.

Squinting does not help. Many mistakenly believe that the shade number corresponds to the UV factor; however, this is incorrect. All quality welding helmets have lenses that provide 100% UV and IR protection, regardless of shade level. The shade is there to dim the bright visible light of the arc to prevent retinal damage and promote easier viewing of the welding work. It is important to wear safety glasses with side shields underneath your helmet. This provides protection during grinding or other common operations when the helmet is flipped up.

Questions to Generate Discussion

- How can directly viewing a welding arc injure your eyes? Does squinting help?
- Wearing a welding helmet protects the welder. How is your shop protecting others from inadvertently viewing a welding arc?

Discussion Date: _____

Employee Participants:

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