Safety Goggle Types, Uses and Cleaning – Quick Tips

Each day, it is estimated that approximately 2000 eye-related injuries occur in the workplace. Of these 2000, one third of the injuries are severe enough to be treated in hospital emergency rooms. Most reported eye injuries occur from flying particles. The second most common eye injuries are a result of accidents from chemical splash.

The Bureau of Labor Statistics reports that almost three out of five workplace eye injuries are due to not wearing appropriate eye protection—either not wearing eye protection at all or wearing the wrong kind of eye protection.

The Occupational Safety and Health Administration's (OSHA's) eye and face protection standard (1910.133) states "the employer shall ensure that each affected employee uses appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation."

It is not uncommon for workers to use safety glasses with sideshields for protection from impact of flying particles. However, workers that use the same type of protection for chemical splash or for protection from vapors have a false sense of security and are not protected. When the hazard assessment calls for protection from chemical splash or chemical vapors, goggles should be selected.

Goggles are designed for protection from specific hazards. They help protect the eyes and facial area immediately surrounding the eyes. Goggles provide more protection than safety glasses from impact, dust, liquid splash, optical radiation and high heat hazards. There are three different types of goggles available: direct ventilation, indirect ventilation and non-vented safety goggles.

Potential Hazard	Type of Protection Needed (Based on ANSI Z87.1-2015 Standard)
Impact	Safety glasses with sideshield protection, goggles with direct or indirect ventilation, faceshields worn over safety glasses or direct or indirect vented goggles, welding helmets worn over safety glasses or direct or indirect vented goggles, loose-fitting respirators worn over safety glasses or direct or indirect vented goggles, full-facepiece respirators
Dust	Goggles with direct or indirect ventilation (eyecup or cover type), full-facepiece respirators
Chemicals	Goggles with indirect or non-vented ventilation, faceshields worn over indirect vent or non-vented goggles, loose-fitting respirators worn over safety glasses or indirect vent or non-vented goggles, full-facepiece respirators
Optical radiation	Welding helmets over safety glasses or direct or indirect vented goggles, faceshields over safety glasses or direct or indirect vented goggles, welding goggles, welding faceshields over safety glasses or direct or indirect vented goggles, welding respirators, safety glasses with or without side protection with shade or special purpose lenses, goggles with direct or indirect ventilation, faceshields worn over safety glasses or direct or indirect vented goggles, loose-fitting respirators worn over safety glasses or direct or indirect vented goggles, full-facepiece respirators
Heat	Safety glasses with sideshield protection, goggles with direct or indirect ventilation, faceshields worn over safety glasses or direct or indirect vented goggles, full-facepiece respirators, loose-fitting respirators worn over safety glasses, screen faceshields worn over safety glasses or direct or indirect
	vented goggles, reflective faceshields worn over safety glasses or direct or indirect vented goggles

Safety Goggles: Types and Uses

Direct vented goggles allow the direct flow of air into the goggle. The openings in the vented portion of the goggles exclude spherical objects that are 0.06 inches (1.5 millimeters) in diameter or greater. In cases where impact is the hazard and a splash or vapor hazard does not exist, a direct vented goggle can be used as an appropriate level of protection.

Indirect vented goggles provide protection from splash entry by a hooded or covered vent. The vented portion of the goggle is designed so that no direct straight-line passage from the exterior to the interior of the goggle exists. The purpose of the indirect venting is to limit or prevent the passage of liquid splash into the goggle. In cases where chemical splash is a hazard, indirect vented goggles should be selected as appropriate protection.

Non-vented goggles have no venting of any kind and offer protection against the passage of dust, mist, liquid and vapors. For applications where chemical vapor* is the hazard, a non-vented goggle will be required protection.
**Non-vented goggles are NOT gas-proof goggles.*

When selecting the appropriate goggle for your workplace, you must first perform a workplace hazard assessment. If eye and face workplace hazards are present, you must determine when, where and what type of eye and face protection is required.

Safety Goggles: Cleaning, Sanitizing and Storage

Cleaning your safety goggles after use is a good practice. There are several ways goggles can be cleaned. Many goggles have special lens coatings. If you use a wipe to clean or dry the lens, you must be careful not to scratch or damage the coating. If a towelette is preferred for cleaning, consider using a moistened towelette to gently wipe the lens. You may also simply rinse the debris from the lens with running water and allow the goggles to dry naturally. Another option would be an eyewear sanitizing cabinet that operates using germicidal bulbs. These cabinets can be used for either goggles and/or safety eyewear.

Commonly Asked Questions

Q: What standards apply to protective eyewear such as goggles?

A: OSHA’s eye and face protection requirements are found in 29 Code of Federal Regulations (CFR) 1910.133. The American National Standards Institute (ANSI) Z87.1-2015 American National Standard for Occupational and Educational Personal Eye and Face Protection Devices is the most current performance standard.

Q: Can I wear my goggles with my prescription eyewear?

A: Most goggles are sized to allow prescription eyewear to be worn with them.

Q: Can goggles that offer foam padding be used for a chemical-splash application?

A: No, even if the goggles are an indirect vented goggle, the use of foam or cloth padding around the seal of a goggle should not be considered when working around chemical splash. Chemicals can saturate the foam or cloth padding and cause chemical burns to the skin.

Related Content

Quick Tips #192: Hazard Assessment Form

Sources

Occupational Safety and Health Administration (OSHA) – 29 CFR 1910.133

American National Standards Institute (ANSI) Z87.1-2015

Prevent Blindness
211 West Wacker Drive

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