

# Eye And Face Safety Standard Explained



The Industrial Safety Equipment Association (ISEA), of which MSA is along-standing member, announced on April 13, 2010 that the American National Standards Institute (ANSI) approved a new standard for eye and face protection. The new Z87.1 standard, titled “ANSI/ISEA Z87.1-2010 American National Standard for Occupational and Educational Personal Face and Eye Protection” (referred to as Z87.1-2010 in this document) was adopted as proposed to the Institute.

Z87.1-2010 sets forth criteria related to the general requirements, testing, permanent marking, selection, care, and use of protectors to minimize the occurrence and severity of—or prevent—injuries from such hazards as impact, non-ionizing radiation, and chemical exposures in occupational and educational environments including, but not limited to, machinery operations, material welding and cutting, chemical handling, and assembly operations.

Since workers in almost every industry are exposed to hazards that could cause serious eye injuries, the changes in the revised standard are important.

### **Why is the Z87.1 standard changing?**

Z87.1-2010 represents a change in the way the standard is organized and how users of eye and face protectors will utilize the standard to select products for specific hazards. The Z87.1-2003 standard and its predecessors were organized by the type of protector. In the process of revising Z87.1-2003, the Z87 Accredited Standards Committee (ASC) evaluated user needs, product variety, and protection in an effort to write a document that provides more information for eye and face protection wearers. The Z87.1-2010 edition focuses on the hazard and is organized by the nature of the hazard such as droplet and splash, impact, optical radiation, dust, fine dust, and mist.

### **How will the changes affect users?**

The hazard approach in the standard will encourage users and employers to evaluate the specific hazards that they are exposed to in their environment and to select appropriate eye and face protection based on their hazard evaluation.

### **What are the significant changes in the revised standard?**

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Because the standard is radically different, the product markings have changed. Users will need to be educated on matching the hazard from which they need protection with the marking on the product. The Z87 ASC also made efforts to harmonize with other eye and face protection standards used around the world. Many of the tables in this standard reflect this effort to harmonize with global standards. Additional changes include:

- Extended side protection. Spectacles with thin temples (metal frame or thin plastic) will require side shields if they do not pass the extended side coverage requirements.
- In Z87.1-2003 protective products are marked as providing “Basic” or “High Impact” protection. In the Z87.1-2010 standard, the products are either non-impact or impact protectors. Products marked as impact protectors must pass all high-impact testing requirements and will be marked as “Z87+”. Non-impact protectors are those which do not pass all high-impact testing requirements and are therefore marked only with “Z87” (no “+” sign).
- In the Z87.1-2003 standard, protective products are defined as primary and secondary protectors; primary eye protection should be used under secondary protection (i.e., safety glasses must be worn under visors). This is changing in the Z87.1-2010 standard. Products such as faceshields and welding helmets, formerly considered secondary protectors, will now be either non-impact or impact protectors. To ensure maximum protection, MSA will continue to recommend that Z87+ impact eye protection always be worn under faceshields. Additionally, MSA will recommend the use of only impact protectors where such protection is necessary.
- Additional product testing has been added for:
  - Dust and mist goggles.
  - Chemical splash goggles and visors.
- additional product markings (see below)

### **New markings? What will they be and what do they mean?**

The new standard requires that all non-impact and impact protectors carry markings as outlined in the standard. In addition to what is currently marked on products (manufacturer mark, standards/impact mark), manufacturers must add lens type (such as filter, visible light filter, and variable tint) and use (i.e., protection against splash /droplet, dust, and fine dust) when claims of impact rating, a specific lens type, and/or use are made by the manufacturer. For additional information on the markings, refer to the table below:

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Type of Mark	Description	Marking for completed Device (no replaceable parts)	Order Information
Impact	Impact Rated Plano Impact Rated Rx	Z87+ Z87-2+	
Non-Impact	LG113	Z87 Z87-2	
Lens Type	Clear	None	493.8
	Welding	W and Shade Number	Shades range from 1.3 to 14; the higher the shade number, the darker the lens.
	UV Filter	U and Scale Number	Scale ranges from 2 to 6, with lenses marked as "U6" providing the highest protection from far and near UV.
	Visible Light Filter	L and Scale Number	Scale ranges from 1.3 to 10, with lower numbers providing greater light transmittance.
	IR Filter	R and Scale Number	Scale ranges from 1.3 to 10.
	Variable Tint	V	
	Special Purpose	S	
Use	Splash/Droplet	D3	
	Dust	D4	
	Fine Dust	D5	

## When will employers have to comply with the revised standard?

On Sept. 9, 2009 OSHA issued a Final Rule concerning 29 CFR (Part 1910 and others) that revised the personal protective equipment (PPE) requirements for eye and face protective devices, head protection, and foot protection. The Final Rule incorporated the latest versions of national consensus and industry standards, such as those of the American National Standards Institute (ANSI). Additionally, OSHA also announced its use of "direct final rule" (i.e., the process used when no significant adverse comments are expected) to ensure that when standards change, the law is automatically updated. Therefore, the ANSI Z87.1-2010 standard should "automatically" be incorporated. Employers must comply with the Final Rule by using and providing for employees PPE that are constructed in accordance with any of the last three national consensus standards (ANSI Z87.1-2010, ANSI Z87.1-2003 and ANSI Z87.1-1989 [R-1998]) or their proven equivalent. Even though direct final rule applies, the process to actually incorporate ANSI Z87.1-2010 into the federal law may still take a while.

## Do distributors and employers have to replace current eye and face protection products in their inventories?

A product currently in use can continue to be used if, after a hazard assessment, the product meets the level of protection required and is compliant with 29 CFR. As products are replaced, MSA recommends that all safety products meet the latest standard revision.

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