Introduction

This protective eyewear selection tool should only be used as a guide. Prior to using this tool, per 29CFR 1910.132, the employer must assess the workplace and determine if hazards that necessitate the use of personal protective equipment (PPE) including eye and face protection, are present, or are likely to be present, before assigning PPE to workers. The types of eye and face hazards identified in the hazard assessment will be the input into this selector tool. The recommended products may not be the complete protection for the hazard (for example, some hazards require both primary eye protection and secondary face protection). Failure to properly identify hazards may result in improper eye and face protection selection, possibly resulting in injury to the eyes or face.

Before using any protective eyewear device, see your safety supervisor, read instructions and warnings on the package or call 3M OH&ESD Technical Service in the USA at 1-800-243-4630.
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What is OSHA?

The Occupational Safety and Health Administration (OSHA) is a part of the US Department of Labor that establishes, issues, and enforces national workplace safety regulations.

The agency’s mission is to assure the safety and health of America’s workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health.
When is the use of eye and face protection required?

OSHA's eye and face protection standard, 29 CFR 1910.133 requires the use of eye and face protection when workers are exposed to eye or face hazards such as flying objects, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.

The following OSHA standards provide mandatory requirements and compliance assistance for employers when selecting proper eye and face protection:

29 CFR 1910.132 – Personal Protective Equipment (PPE)-General Requirements (General Industry)
29 CFR 1910.133 – PPE Eye and Face Protection (General Industry)
29 CFR 1926.102 – Personal Protective and Life Saving Equipment-Eye and Face Protection (Construction)
29 CFR 1915.153 – PPE-Eye and Face Protection (Shipbuilding)
How is proper eye and face protection selected?

Eye and face protection must be selected on the basis of hazards to which the worker is exposed. A first critical step in developing a comprehensive safety and health program is to identify physical and health hazards in the workplace. This process is known as a "hazard assessment." Per 29CFR 1910.132, the employer must assess the workplace and determine if hazards that necessitate the use of personal protective equipment (PPE), including eye and face protection, are present, or are likely to be present, before assigning PPE to workers. A properly conducted hazard assessment identifies routine and non-routine activities and tasks which have increased risk of exposure to eye and face hazards.
Who has the responsibility to conduct a hazard assessment?

The hazard assessment is the responsibility of the health and safety administrator.

OSHA regulations specify employer and employee obligations to help reduce the risk of exposure to hazards.

The hazard assessment should begin with a walk-through survey of the facility to develop a list of potential hazards according to the following basic hazard concerns:

- Impact (Flying fragments, objects, large chips, particles, sand, dirt, etc.)
- Dust (Nuisance dust)
- Chemical (Splash and irritating mists)
- Optical Radiation-Glare
- Heat (Hot sparks, splash from molten metal, high temperature exposure)
- Optical Radiation-Welding, cutting, torch brazing, torch soldering
- General Lighting (Fluorescent /Incandescent, Low Light)
- Special Applications (Inspection, Repair, Detail Work)
What is ANSI?

The American National Standards Institute (ANSI) is a private organization that oversees the development of voluntary consensus standards for products in the United States. ANSI accredits standards that are developed by representatives of standards developing organizations, government agencies, consumer groups, companies and others.

**ANSI/ISEA Z87.1-2010 Occupational and Educational Personal Eye & Face Protection Devices**

“This standard sets forth criteria related to the general requirements, testing, permanent marking, selection, care, and use of protectors to minimize the occurrence and severity or prevention of 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. Certain hazardous exposures are not covered in this standard. These include, but are not limited to: Bloodborne pathogens, X-rays, high energy particulate radiation, microwaves, radio-frequency radiation lasers, masers, and sports and recreation”.

A copy of the newly revised ANSI/ISEA Z87.1-2010 can be purchased from the International Safety Equipment Association. (ISEA)


Please note that the 3M products recommended by this selection tool have 2003 markings. Eyewear markings will be updated per the 2010 standard in the near future.
What type of coatings are available on protective eyewear?

Coatings are applied to lenses to enhance eyewear performance. Coatings have properties that improve scratch resistance, minimize fogging, or reduce static. No eyeglass lens material is scratch-proof. However, a lens treated with a clear, hard coating does improve scratch resistance. Polycarbonate lenses, which offer enhanced impact strength, can be easily scratched. Softness properties of polycarbonate typically require that a scratch-resistant coating be applied to improve their durability. Other coatings, such as anti-fog, are applied to the lens to improve performance in harsh environments. Anti-fog coatings are generally not permanent and can erode over time. Proper care and cleaning of an anti-fog lens will help maintain coating performance.

3M Offers:

**Hard Coat (H/C)**
Provides scratch resistance to polycarbonate, which typically scratches very easily without such protection.

**Anti-Fog (A/F)**
Ideal for workers performing in extremely hot, cold or humid conditions. The coating helps prevent fogging of the safety glasses, which can lead to a reduced field of vision.

**DX™ Anti-Fog Hard Coat**
Application process was developed internally, DX is a combination anti-fog hard coat that provides abrasion resistance and helps to prevent fogging. Eliminates the need to buy spectacles with these two different coatings.

DX provides fog resistance for up to 4 times longer than other popular combination anti-fog/anti-scratch coatings while maintaining a comparable abrasion resistance.*

* 3M R&D Lab October 2010
What is visible light?

Visible light is that portion of the light spectrum that the eye perceives as color. In this spectrum, protective eyewear deals with glare or the brightness of the sun. Excessive amounts of visible light are irritating to unprotected eyes and can reduce visual perception.

What is Infrared (IR)?
Infrared radiation is of longer wavelength than the visible light frequencies, and is perceived as heat. If you are exposed to intense infrared light for a lengthy period of time without protection, you may experience a burning or stinging sensation in your eyes. Long term exposure can lead to cataract formation.
What is ultraviolet radiation?

The principal danger posed by the sun is in the form of ultraviolet radiation. UV radiation can also be given off by artificial sources like welding machines or tanning. Ultraviolet rays have shorter wavelengths and more energy than visible light rays and can cause acute harmful effects or chronic harmful effects, depending on the wavelength, energy level, and duration of exposure. Ultraviolet radiation can be divided into three categories:

**UVA (320 - 380 nm)**
UVA rays are absorbed by the lens of your eye. Extended exposure to UVA rays can lead to the formation of cataracts.

**UVB (290 - 320 nm)**
UVB is a physically painful form of ultraviolet radiation. Exposure to UVB can temporarily damage the cornea. This band of radiation causes cancer and burning of the eye and has been linked to damage of the lens inside the eye.

**UVC (200 - 290 nm)**
UVC is absorbed by the atmospheric ozone layer and never reaches your eyes.
Why is lens color an important consideration?

Lenses are offered in different tints and colors for a variety of reasons, including reduction of UV or IR exposure, vision enhancement, glare reduction or style preference. Lighting conditions in the work environment and the need for filtering of specific visible light wavelengths dictate vision enhancement and glare reduction requirements. Examples of lens colors commonly found and specific applications where they may be used are presented below.

<table>
<thead>
<tr>
<th>Lens Color Type</th>
<th>Color of Light Reduced or Blocked</th>
<th>Lens Properties/Use</th>
<th>Percent of Visible Light Passing through the Lens (approx.)</th>
<th>Suggested Applications/Environments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear</td>
<td>None</td>
<td>Maximum amount of light reaches the eye for good vision and acuity</td>
<td>85%+</td>
<td>General everyday eye protection.</td>
</tr>
<tr>
<td>Gray, Brown, Bronze</td>
<td>All</td>
<td>Reduces brightness and glare from the sun.</td>
<td>10%-25%</td>
<td>Mainly for outdoor daytime use as in typical sunglasses use.</td>
</tr>
<tr>
<td>Mirror &amp; Colored Mirror</td>
<td>All</td>
<td>Reduces brightness and glare from the sun.</td>
<td>10%-25%</td>
<td>Mainly for outdoor daytime use as in typical sunglasses use.</td>
</tr>
<tr>
<td>Indoor/Outdoor</td>
<td>All</td>
<td>Reduces brightness and glare when working both indoors and outdoors</td>
<td>50%</td>
<td>For tasks requiring frequent movement indoors/outdoors. Loading docks, forklift drivers, construction or similar jobs.</td>
</tr>
<tr>
<td>Photochromic</td>
<td>All</td>
<td>Reduces brightness and glare from the sun and indoor lighting</td>
<td>Varies from 20% to 80%</td>
<td>Lens darkens when outside and lightens when inside. Do not use for frequent indoor/outdoor movement.</td>
</tr>
<tr>
<td>Polarized</td>
<td>All</td>
<td>Reduces brightness and glare from the sun.</td>
<td>15%</td>
<td>Exceptional for reducing reflective glare. Mainly for outdoor use.</td>
</tr>
<tr>
<td>Yellow/Amber</td>
<td>Purple &amp; Blue</td>
<td>Increases contrast, reduces haze from blue lighting, excellent UV protection.</td>
<td>85%-92%</td>
<td>Good for inspection tasks and hazy, overcast or foggy days. Never use for night driving.</td>
</tr>
<tr>
<td>Pink/Vermillion</td>
<td>Green</td>
<td>Increases contrast, low level indoor lighting glare reduction.</td>
<td>50%</td>
<td>Good for inspection tasks. Some workers prefer pink/vermillion over yellow/amber.</td>
</tr>
<tr>
<td>Blue</td>
<td>Yellow</td>
<td>Reduces brightness and glare from indoor lighting.</td>
<td>35%-65%</td>
<td>Very useful to reduce glare, eye stress and fatigue in yellow light environments.</td>
</tr>
<tr>
<td>Filter Shades, Green &amp; Gray</td>
<td>Red</td>
<td>Reduces ultraviolet, visible and infrared radiation.</td>
<td>Depends upon shade number</td>
<td>Predominately used for gas welding, cutting, brazing and soldering, metal mining, furnace work and open flames.</td>
</tr>
<tr>
<td>Minimizer™</td>
<td>All</td>
<td>Reduces ultraviolet, visible and infrared radiation</td>
<td>50%</td>
<td>Provides good visual sight and acuity while absorbing UV and some IR. Excellent for welding with a welding helmet.</td>
</tr>
</tbody>
</table>
Let’s Get Started!

**WARNING:** This protective eyewear selection tool should only be used as a guide. Prior to using this tool, a proper eye and face hazard assessment must be conducted by qualified personnel. The types of eye and face hazards identified in the hazard assessment will be the input into this selector tool. The recommended products may not be the complete protection for the hazard (for example, some hazards require both primary eye protection and secondary face protection). Failure to properly identify hazards may result in improper eye and face protection selection, possibly resulting in injury to the eyes or face.

Before using any protective eyewear device, see your safety supervisor, read instructions and warnings on the package or call 3M OH&ESD Technical Service in the USA at 1-800-243-4630.

**Click the green start button** below to begin and to acknowledge that you have read and understand the warnings to this selection tool.

**WARNING:** Misuse or failure to follow all warnings and instructions may result in serious personal injury, including blindness, or death.
Select Industry

Construction
Food & Beverage
General Industry/ Manufacturing
Mining
Oil & Gas
Pharmaceutical
Primary Metal/Foundries
Specialty and/or Base Chemicals
Transportation
Other
Hazard or Application

Appropriate eye and face protection must be used to protect against the hazards associated with flying objects, dust, chemical splash, and potentially injurious optical radiation.

- Impact (Flying Fragments, Objects, Large Chips, etc.)
- Dust (Nuisance Dust)
- Chemical (Splash and Irritating Mist)
- Optical Radiation-Glare
- Heat (Hot Sparks, Splash from Molten Metal, etc.)
- Optical Radiation-Welding, Cutting, etc.
- General Lighting (Fluorescent /Incandescent, Low Light)
- Special Applications (Inspection, Repair, Detail Work)
Impact

Examples of Hazard: Flying Fragments, Objects, Large Chips, Particles, Sand, Dirt, etc.

Common Related Applications/Tasks: Chipping, drilling, scaling, grinding, polishing, buffing, riveting, punching, shearing and crushing

When exposed to flying objects, fragments, and particles, eye protection must be worn. For severe impact hazards, both eye and face protection may be required.

Spectacles

Goggles

Faceshields
Dust

Examples of Hazard: Nuisance Dust

Common Related Applications/Tasks: Woodworking, buffing, and general dusty conditions

Safety goggles are the only effective type of eye protection from nuisance dust because they create a protective seal around the eyes. If faceshields are worn to protect from nuisance dust then they must be used in conjunction with goggles.

Goggles (Indirect Vent)

Faceshields
Chemical

**Examples of Hazard:** Splash and irritating mist

**Common Related Applications/Tasks:** Acid and chemical handling, degreasing and plating

When fitted and worn correctly, splash goggles can protect your eyes from certain liquid chemical exposures. A faceshield may also be required in areas where workers faces are exposed to severe chemical hazards. If faceshields are worn, they must be used in conjunction with goggles.

**Goggles (Indirect Vent)**

**Faceshields**
Optical Radiation-Glare

**Examples of Hazard:** Ultraviolet Radiation (UVA and UVB)

**Common Related Applications/Tasks:** Anyone working outdoors who may be exposed to the sun's ultraviolet radiation and bright visible light

Too much exposure to UV light (sunlight) may cause cataracts, macular degeneration, cancer of the eyelids and skin around the eyes, and photokeratitis – a painful sunburn of the eyes. The color or tint of the lens does not affect the ability to block UV light since polycarbonate lenses have an inherent UV light blocking property.

Spectacles
Optical Radiation-Welding and Cutting

**Examples of Hazard:** Intense visible light, ultraviolet (UVA and UVB) and infrared radiation

**Common Related Applications/Tasks:** Electric Arc and Gas Welding, Torch Brazing, Torch Soldering

The intensity of visible light and radiant energy produced by welding operations varies depending on the task, the electrode size, and the arc current. Workers involved in welding, cutting, and brazing operations must use appropriate welding protection depending on specific welding operations. Consult the filter selection table in OSHA 1910.133 for proper filters or specific applications.

<table>
<thead>
<tr>
<th>Task</th>
<th>Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torch Soldering</td>
<td>Spectacles</td>
</tr>
<tr>
<td>Electric Arc Welding</td>
<td>SELECT</td>
</tr>
<tr>
<td>Gas Welding</td>
<td>SELECT</td>
</tr>
<tr>
<td>Torch Brazing</td>
<td></td>
</tr>
<tr>
<td>Cutting</td>
<td>Spectacles</td>
</tr>
</tbody>
</table>

For work around shielded welding operations or under welding helmets
Heat

Examples of Hazard: Hot sparks, splash from molten metal or high temperature exposures.

Common Related Applications/Tasks: Furnace operations, pouring, casting, hot dipping, gas cutting and welding

Heat hazards may also involve optical radiation and requires eye protection such as goggles or spectacles with special-purpose lenses. Faceshields should only be worn over primary eye protection (spectacles or goggles).

| Hot Sparks – Per ANSI Z87.1, a faceshield is required to be worn over spectacle and or goggles. | Spectacles | SELECT |
|Splash from Molten Metal – Per ANSI Z87.1, a faceshield is required to be worn over spectacle and or goggles. | Goggles (Indirect Vent) | SELECT |
| | Faceshield | SELECT |
| High Temperature Exposure – Per ANSI Z87.1, a faceshield is required to be worn over spectacle and or goggles. | Spectacles | SELECT |
| | Faceshield | SELECT |
General Lighting

**Examples of Hazard:** Industries with medium to high levels of yellow incandescent /fluorescent lighting or high intensity blue lighting is present.

**Common Related Applications/Tasks:** Assembly and inspection processes

Fluorescent / Incandescent Lighting

Low Lighting
Special Applications

Protective eyewear that is designed to aid the user in certain applications.

**Common Related Applications/Tasks:** Inspection and repair, fine assembly and detail work

- Task Lighting
- Fine Print / Detail Work (Magnification)
- Fine Print / Detail Work/Task Lighting
Impact (Spectacles)

All 3M protective eyewear, spectacles and goggles, meet the High Impact requirements of ANSI Z87.1-2003.
<table>
<thead>
<tr>
<th>Spectacles</th>
<th>Optical Radiation-Glare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gray Lens</td>
<td></td>
</tr>
<tr>
<td>Bronze/Brown Lens</td>
<td></td>
</tr>
<tr>
<td>Gray/Brown w/Red Mirror Lens</td>
<td></td>
</tr>
<tr>
<td>Gray w/Blue Mirror Lens</td>
<td></td>
</tr>
<tr>
<td>Gray w/Gold Mirror Lens</td>
<td></td>
</tr>
<tr>
<td>Photochromic Lens</td>
<td></td>
</tr>
<tr>
<td>Indoor/Outdoor (I/O) Lens</td>
<td></td>
</tr>
<tr>
<td>Railway Signal Recognition</td>
<td></td>
</tr>
<tr>
<td>Polarized Lens</td>
<td></td>
</tr>
</tbody>
</table>
Spectacles Clear Lens

For general indoor applications where impact protection is required. Also helps protect against ultraviolet light.

<table>
<thead>
<tr>
<th>3M™ Virtua™ Protective Eyewear</th>
<th>3M™ BX™ Protective Eyewear</th>
<th>3M™ Maxim™ GT Protective Eyewear</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lens Coatings</strong></td>
<td>Uncoated, H/C, A/F</td>
<td>Mirror</td>
</tr>
<tr>
<td><strong>Size Options</strong></td>
<td>StdStd, Max, Slim</td>
<td>Std</td>
</tr>
<tr>
<td><strong>Pricing</strong></td>
<td>♦</td>
<td>♦</td>
</tr>
</tbody>
</table>

Click here for clear lens options to fit over most personal prescription eyewear.
Spectacles  OTG Clear Lens

Designed to fit over many different styles of personal prescription eyewear. Use for general indoor applications where impact protection is required. Helps protect against ultraviolet light. Goggles can also be used to fit over many different styles of personal prescription eyewear.

<table>
<thead>
<tr>
<th>Model</th>
<th>Lens Coatings</th>
<th>Size Options</th>
<th>Compliance</th>
<th>Pricing</th>
</tr>
</thead>
<tbody>
<tr>
<td>3M™ Tour-Guard™ Protective Eyewear  (41110-00000-100)</td>
<td>Uncoated</td>
<td>Std, Smallttd</td>
<td>ANSI Z87.1-2003 &amp; CSA Z94.3-2007</td>
<td>♦</td>
</tr>
</tbody>
</table>
Spectacles  Gray Lens

For outdoor applications where light and glare can cause eye strain and fatigue. A gray tint provides good protection from glare and helps keep distortion of colors to a minimum.

3M™ Virtua™ Protective Eyewear  
(11330-00000-20)
- Lens Coatings: H/C, A/F
- Size Options: Std, Max, Slim
- Compliance: ANSI Z87.1-2003
- Pricing: ♦

3M™ BX™ Protective Eyewear  
(11381-00000-20)
- Lens Coatings: H/C, A/F
- Size Options: Std
- Pricing: ♦ ♦

3M™ Maxim™ GT Protective Eyewear  
(14247-00000-20)
- Lens Coatings: A/F
- Size Options: Std
- Pricing: ♦ ♦
Spectacles  Yellow/Amber Lens

A yellow tint helps make objects appear sharper against a blue or green background. Blocks the blue portion of the visible light spectrum, sometimes marketed as "blue blockers", creating maximum contrast enhancement particularly in low light. Yellow tints are good for overcast, hazy or foggy conditions.

<table>
<thead>
<tr>
<th>3M™ Virtua™ Sport Protective Eyewear (11544-00000-20)</th>
<th>3M™ Privo™ Protective Eyewear (12263-00000-20)</th>
<th>3M™ Metaliks™ Sport Protective Eyewear (11346-00000-20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size Options: Std</td>
<td>Size Options: Std</td>
<td>Size Options: Std</td>
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<tr>
<td>Pricing:</td>
<td>Pricing:</td>
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</tbody>
</table>

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Developed for semiconductor fabrication, photolithography and similar industries where there is medium to high levels of yellow incandescent/fluorescent lamps, or high and low pressure sodium vapor lighting. Reduces glare, eye stress, and fatigue often occurring in monochromatic (single color) yellow lit environments. Useful as a general glare reducer in work environment where there is strong glare from bright lighting.

<table>
<thead>
<tr>
<th>3M™ Virtua™ Sport Protective Eyewear (11543-00000-20)</th>
<th>3M™ BX™ Protective Eyewear (11523-00000-20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lens Coatings</td>
<td>H/C, A/F</td>
</tr>
<tr>
<td>Size Options</td>
<td>Std</td>
</tr>
<tr>
<td>Pricing</td>
<td>♦</td>
</tr>
</tbody>
</table>
A clear lens with a slight mirror coating serves the same purpose as gray lens, yet allows more visible light through the lens for indoor/outdoor use. Reduces glare from artificial light. The Indoor/Outdoor lens provides excellent vision in both indoor and outdoor lighting.

<table>
<thead>
<tr>
<th>Spectacles</th>
<th>Indoor/Outdoor (I/O) Lens</th>
</tr>
</thead>
</table>

3M™ Virtua™ V4 Protective Eyewear  
(11674-00000-20)  
- Lens Coatings: Mirror  
- Size Options: Std  
- Compliance: ANSI Z87.1-2003  
- Pricing: ✦

3M™ Metaliks™ Protective Eyewear  
(15172-00000-20)  
- Lens Coatings: Mirror  
- Size Options: Std  
- Pricing: ✦✦

3M™ Maxim™ GT Protective Eyewear  
(14248-00000-20)  
- Lens Coatings: Mirror  
- Size Options: Std  
- Pricing: ✦✦
Spectacles With LED lights

Protective eyewear that has lights mounted on each temple to provide hands-free task lighting. The bright LED lights swivel for directional convenience. Use in low light areas.
Spectacles  Readers With LED lights

Protective eyewear that has built-in bi-focal readers and lights mounted on each temple to help provide hands-free task lighting. A good choice for workers who have difficulty reading small print or who are engaged in small detail work in low light areas.

3M™ Light Vision™ 2 Protective Eyewear
(11477-00000-10)

- Lens Coatings: A/F
- Size Options: +1.5, +2.0, +2.5
- Pricing: ♦ ♦ ♦
Did you know? The term “presbyopia” means “old eye” and is a vision condition involving the loss of the eye’s ability to focus on close objects. Protective Eyewear with Readers is an effective solution for anyone who wears reading glasses, who is engaged in small detailed work or has difficulty reading small print.

**3M™ Virtua™ Protective Eyewear**

- **(11513-00000-20)**
- Lens Coatings: A/F
- Size Options: +1.5, +2.5, +2.5
- Compliance: ANSI Z87.1-2003
- Pricing: ♦

**3M™ Lexa™ Protective Eyewear**

- **(13353-00000-20)**
- Lens Coatings: DX, Minimizer
- Size Options: +1.5, +2.5, +2.5
- Pricing: ♦ ♦

**3M™ BX™ Protective Eyewear**

- **(14248-00000-20)**
- Lens Coatings: A/F
- Size Options: +1.5, +2.5, +2.5 & Dual (top/bottom)
- Pricing: ♦ ♦
Spectacles  Gray w/Blue Mirror Lens

Use outdoor where sunlight and glare cause eye strain and fatigue. “Mirror” coating reflects light reducing the amount of light that passes through the lens.
Spectacles  Gray or Brown w/Red Mirror Lens

Use outdoor where sunlight and glare cause eye strain and fatigue. “Mirror” coating reflects light reducing the amount of light that passes through the lens.

<table>
<thead>
<tr>
<th>3M™ FUEL™ Protective Eyewear</th>
<th>3M™ FUEL™ X2 Protective Eyewear</th>
<th>3M™ OCC™ Protective Eyewear</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lens Coatings</td>
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</tr>
<tr>
<td>Mirror</td>
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</tr>
<tr>
<td>Size Options</td>
<td>Size Options</td>
<td>Size Options</td>
</tr>
<tr>
<td>Std</td>
<td>Std</td>
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<tr>
<td>Compliance</td>
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<td>Pricing</td>
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<td>♦ ♦ ♦</td>
<td>♦ ♦ ♦</td>
<td>♦ ♦ ♦</td>
</tr>
</tbody>
</table>
Spectacles  Gray w/Gold Mirror Lens

Use outdoor where sunlight and glare cause eye strain and fatigue. “Mirror” coating reflects light reducing the amount of light that passes through the lens.

<table>
<thead>
<tr>
<th>3M™ OCC™ Protective Eyewear (11717-00000-10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lens Coatings: Mirror</td>
</tr>
<tr>
<td>Size Options: Std</td>
</tr>
<tr>
<td>Compliance: ANSI Z87.1-2003</td>
</tr>
<tr>
<td>Pricing: ♦ ♦ ♦</td>
</tr>
</tbody>
</table>
Spectacles  Bronze/Brown Lens

For outdoor applications where sunlight and glare cause eye strain and fatigue. Bronze/Brown tints work well in variable light conditions and provide good contrast because they filter some blue light, although not as strongly as a yellow tint.

### 3M™ Maxim™ Protective Eyewear (13251-00000-20)
- **Lens Coatings**: DX
- **Size Options**: Std
- **Compliance**: ANSI Z87.1-2003 & CSA Z94.3-2007
- **Pricing**: ± ± ±

### 3M™ Metaliks™ GT Protective Eyewear (11555-00000-20)
- **Lens Coatings**: A/F
- **Size Options**: Std
- **Compliance**: ANSI Z87.1-2003
- **Pricing**: ± ± ±

### 3M™ FUEL™ X2 Protective Eyewear (11636-00000-20)
- **Lens Coatings**: A/F
- **Size Options**: Std
- **Compliance**: ANSI Z87.1-2003
- **Pricing**: ± ± ±
Spectacles  Polarized Lens

For use outdoors to protect from excessive glare that can cause eye strain and fatigue. Polarized lenses help reduce the amount of reflected light or glare that enters the eye.

<table>
<thead>
<tr>
<th>3M™ GlareX™ Protective Eyewear (12236-00000-20)</th>
<th>3M™ OCC™ 304 Protective Eyewear (11451-00000-10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lens Coatings</td>
<td>Lens Coatings</td>
</tr>
<tr>
<td>H/C</td>
<td>H/C</td>
</tr>
<tr>
<td>Size Options</td>
<td>Size Options</td>
</tr>
<tr>
<td>Std</td>
<td>Std</td>
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<tr>
<td>Compliance</td>
<td>Compliance</td>
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<tr>
<td>Pricing</td>
<td>Pricing</td>
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<tr>
<td>♦ ♦ ♦</td>
<td>♦ ♦ ♦</td>
</tr>
</tbody>
</table>
Spectacles  Photochromic Lens

When exposed to outdoor ultraviolet light, the lenses automatically darken for added protection against bright light. Not for driving.

- Light to dark in less than 20 seconds
- Dark to light in less than 3 minutes
Scientifically formulated lens material provides accurate red signal visibility. These RSR lenses are designed to provide railway personnel with glare, brightness, and ultraviolet protection, as well as excellent signal light recognition. This type of lens is also used by U.S. and Canadian military personnel who need lens neutrality and red signal visibility.
Spectacles MinimizeR™ Lens

*Designed specifically for work around shielded welding operations or under welding helmets.* Reduces infrared (I.R.) light with excellent UV absorption. Helps protect against some infrared radiation and “flash burn”, a common and damaging hazard that occurs when workers are exposed to welding arcs. **Not designed to be worn as primary eye protection in welding, cutting, torch brazing, or torch soldering.**

<table>
<thead>
<tr>
<th>3M™ QX™ Protective Eyewear</th>
<th>3M™ Lexa™ Protective Eyewear</th>
<th>3M™ Maxim™ Protective Eyewear</th>
</tr>
</thead>
<tbody>
<tr>
<td>(12180-10000-20)</td>
<td>(15250-00000/Lg-15150-00000-20)</td>
<td>(12289-00000-20)</td>
</tr>
<tr>
<td>Lens Coatings</td>
<td>A/F</td>
<td>A/F</td>
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<tr>
<td>Size Options</td>
<td>Std</td>
<td>Std, Lg</td>
</tr>
<tr>
<td>Pricing</td>
<td>♦♦</td>
<td>♦♦</td>
</tr>
</tbody>
</table>
Spectacles  Green/infrared (I.R.) Shade Lens

Use these shaded spectacles where there is intense heat. The green/I.R. lens helps protect against glare, ultraviolet and infrared radiation. Shade 3.0 can be used for certain brazing or cutting applications. Shade 5.0 can be used for certain torch soldering, torch brazing or cutting applications.

The intensity of light or radiant energy produced by welding, cutting or brazing operations varies according to a number of factors including the task producing the light, the electrode size and the arc current. These factors must be thoroughly evaluated by qualified personnel in order to select the proper lens shade for the application.
Indirect vent goggles help protect against certain chemical liquids and splash.

<table>
<thead>
<tr>
<th>Product</th>
<th>Model Number</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3M™ 334 Splash Goggle</strong></td>
<td>(Indirect vent) (40660-00000-10)</td>
</tr>
<tr>
<td>Lens Coatings</td>
<td>Uncoated, A/F</td>
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<tr>
<td>Size Options</td>
<td>Std</td>
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<tr>
<td>Pricing</td>
<td>♦</td>
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<tr>
<td><strong>3M™ Centurion™ Splash Goggle</strong></td>
<td>(Indirect vent) (40305-00000-10)</td>
</tr>
<tr>
<td>Lens Coatings</td>
<td>A/F</td>
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<td>Size Options</td>
<td>Std</td>
</tr>
<tr>
<td>Pricing</td>
<td>♦♦</td>
</tr>
<tr>
<td><strong>3M™ Maxim™ Splash Goggle</strong></td>
<td>(Indirect vent) (40670-00000-10)</td>
</tr>
<tr>
<td>Lens Coatings</td>
<td>A/F</td>
</tr>
<tr>
<td>Size Options</td>
<td>Std, Lg</td>
</tr>
<tr>
<td>Pricing</td>
<td>♦♦♦</td>
</tr>
</tbody>
</table>
Direct vent goggles offer maximum airflow, but are only approved for particulate protection during jobs such as grinding, cutting, and sanding applications.

### 3M™ 332 Impact Goggle
**40650-00000-10**
- **Lens Coatings**: A/F
- **Size Options**: Std
- **Compliance**: ANSI Z87.1-2003
- **Pricing**: ♦

### 3M™ Centurion™ Impact Goggle
**40309-00000-10**
- **Lens Coatings**: A/F
- **Size Options**: Std
- **Compliance**: ANSI Z87.1-2003 & CSA Z94.3-2007
- **Pricing**: ♦ ♦
Faceshield Selection

All headgear/faceshield combinations are considered secondary eye protection and must be worn in conjunction with compliant spectacles and/or safety goggles and other appropriate Personal Protective Equipment (PPE) as needed.

In all cases a risk/hazard assessment should be completed in order to determine the appropriate protection required.

For assistance with eye and face protection for your application contact 3M Technical Assistance: 1-800-243-4630
Welding Helmet Selection

Welding helmets, faceshields, goggles, and spectacle shields are used to protect your eyes and face from the high intensity light, sparks and spatter produced by most welding operations.

Welding helmets are secondary protectors intended to shield the eyes and face from optical radiation, heat, and impact. Use welding helmets in addition to primary protection such as safety spectacles or goggles to provide adequate protection.

In all cases a risk/hazard assessment should be completed in order to determine the appropriate protection required.

For assistance with eye and face protection for your application, contact 3M Technical Assistance: 1-800-243-4630.
This protective eyewear selection tool should only be used as a guide in selecting the appropriate protective eyewear, lens color and/or product type. For additional 3M products not mentioned in this selection tool please go to:

http://solutions.3m.com/wps/portal/3M/en_US/Health/Safety/

Technical Assistance:  1-800-243-4630
Customer Care Center:  1-800-328-1667