Safety Glasses Selection

OSHA 29 CFR 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.”

What separates a pair of safety glasses from other types of glasses?
Impact standards exist which are set by ANSI (the American National Standards Institute). Look for the ANSI Approvals, usually located on the side of the temples, and sometimes on the lens itself.

ANSI has two impact standards (USA only):
- Basic: usually glass lens, approval is ANSI Z87
- High Impact: polycarbonate lens, approval is ANSI Z87+

CSA has one standard (Canada only):
- CSA Z94.3-2007

How do you select the best safety glasses?

STYLE:
Choose a style that you will be happy with. Style is the #1 reason workers do not wear safety glasses.

COATINGS:
Anti Fog and Anti Scratch coatings enhance the life of safety glasses and improve worker comfort.

TEMPLES:
Select the most comfortable temple for the user. Bayonet temples slide over the tops of ears and do not rest on mastoid bone. This style is the most preferred for comfort.

Spatula temples, that curve over the ear, are too tight and are a leading cause of those headaches.

BALANCE:
Make sure the glasses are not front heavy. If the glasses rest on the nose, they will constantly slide down. This requires unremitting adjustment and this style tends to be taken off more frequently.

LENS CONSTRUCTION:
Select the proper lens construction. This is a critical step in the process.
Safety Glasses Selection (cont.)

Interpupillary Distance is the critical factor. This is the distance between the centers of each eye ball. The average distance is between 58 and 72 mm. (Fig. 1)

1. Dual lens offers two optical centers. Both traditional old school glasses and modern glasses examples exist. A good example of this is the “Buddy Holly” style. The biggest issue with this lens construction is that if someone falls outside of the average, or near its boundaries, they cannot see through the glasses correctly. (Fig. 2)

2. Single lenses offer one optical center. This is especially helpful to people with an interpupillary distance which is outside the average. There is only one center to this style of lens. (Fig. 3)

3. Aspheric Lens Technology offers 180 degree vision and takes the single lens design to the next level. This is the most optically correct lens style. These lenses wrap around the face, without the distortion of typical single lens designs. The optical quality is as good on the sides as it is in the center. (Fig. 4)

Lens Color Selection

Selecting the proper color of lens is important to protect against non-flying environmental hazards, such as UV, or radiation. Using the data below, select the appropriate color of lens that will suite your application.

<table>
<thead>
<tr>
<th>Lens Color</th>
<th>Typical Application</th>
<th>Example</th>
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<tbody>
<tr>
<td>Clear</td>
<td>Indoor applications, especially natural light.</td>
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<tr>
<td>Indoor outdoor</td>
<td>Ideal for applications that require transition between indoor lighting and sunlight, such as fork lift drivers.</td>
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<td>Light Blue</td>
<td>Made originally for sodium vapor lighting, which is prevalent in semiconductor fabrication facilities. Works great under halogen lights as well.</td>
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<tr>
<td>Amber</td>
<td>This blocks the blue portion of the visible light spectrum, and creates maximum contrast. Works well in low light applications.</td>
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<tr>
<td>Vermillion</td>
<td>This pink lens reduces all color portions of the visible light spectrum, and provides excellent contrast in all colors. These are designed for detail work and inspection</td>
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<tr>
<td>Gray</td>
<td>This shade blocks bright light. Ironically these can be unsafe as too much light can be blocked.</td>
<td></td>
</tr>
<tr>
<td>Polarized</td>
<td>This eliminates glare.</td>
<td></td>
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<tr>
<td>Welding</td>
<td>Two shades of green available, not for welders but for passers by.</td>
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