

# ***Update No. 1***

## ***Z94.3-07***

### ***December 2007***

**Note:** *General Instructions for CSA Standards are now called Updates. Please contact CSA Information Products Sales or visit [www.ShopCSA.ca](http://www.ShopCSA.ca) for information about the **CSA Standards Update Service**.*

**Title:** *Eye and face protectors* — originally published September 2007

The following revisions have been formally approved and are marked by the symbol delta ( $\Delta$ ) in the margin on the attached replacement pages:

<b>Revised</b>	Contents and Clause 6.5.1
<b>New</b>	None
<b>Deleted</b>	None

CSA Z94.3-07 originally consisted of **72 pages** (x preliminary and 62 text), each dated **September 2007**. It now consists of the following pages:

<b>September 2007</b>	v–x, 1–6, and 9–62
<b>December 2007</b>	iii, iv, 7, and 8

- Update your copy by inserting these revised pages.
- Keep the pages you remove for reference.



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## 6.1.2 Flexible components

With the exception of housings, flexible components shall be exempt from the impact-resistance requirements.

## 6.1.3 Testing criteria

### 6.1.3.1

Except as specified in Clause 6.1.3.2, the test for impact resistance shall be the impact of a 6.4 mm diameter steel ball travelling at a speed of  $46.5 \pm 0.5$  m/s. The test shall be performed in accordance with Clause 12.2.2. No contact with either eye of the headform shall be permitted, nor shall any part become detached from the inner surface of the protector, nor shall the protector fail as defined below:

- (a) lens failure: a lens shall be considered to have failed if it cracks through its entire thickness into two or more separate pieces, or if any lens material visible to normal or corrected-to-normal vision, including a laminar layer, if any, becomes detached from the ocular surface; or
- (b) housing failure: housing (such as a front, side shield, frame, body, lift-front, or lens holder) shall be considered to have failed if parts or fragments that could contact either eye of the headform are ejected from the protector.

### 6.1.3.2

For filter lenses or filter plates that are used in welding hand shields (Class 4) or welding helmets (Class 3), the test for impact resistance shall be the impact of a 6.4 mm diameter steel ball travelling at a speed of  $18.0 \pm 0.5$  m/s. The test shall be performed in accordance with Clause 12.2.2. No contact with either eye of the headform shall be permitted, nor shall any part become detached from the inner surface of the device.

## 6.2 Ignition/flammability requirements

### 6.2.1 Ignition resistance

The protector shall not ignite during steel rod contact, nor continue to glow or be consumed after removal of the steel rod in accordance with Clause 12.3.1.

### 6.2.2 Flame resistance

The burning rate of each component shall not exceed 75 mm/min when tested in accordance with Clause 12.3.2.

## 6.3 Replacement components

The manufacturer's instructions shall state that replacement components shall be used in accordance with the manufacturer's instructions. The manufacturer shall provide instructions specifying the correct replacement component.

**Note:** Certification of eyewear is void if replacement components as specified by the manufacturer are not used.

## 6.4 Clear zero-power lenses

### 6.4.1 Size

Clear zero-power lenses shall meet the size requirements for the appropriate protector (see Clauses 7.1, 9.2.3.1, and 10.2.1).

### 6.4.2 Residual power

The refractive power of a clear zero-power lens shall not exceed  $\pm 0.12$  dioptre in any meridian when tested in accordance with Clause 12.4.

### 6.4.3 Resolving power

Clear zero-power lenses shall possess adequate definition to permit resolution of the 60-s\* ring through all portions up to 3 mm from the edge of the lens when tested in accordance with Clause 12.5, except that 5% of the area may resolve 90-s.

\*s means subtended seconds of arc.

### 6.4.4 Prismatic deviation

The prismatic deviation of clear zero-power lenses shall not exceed the following values when tested in accordance with Clause 12.6:

	Lens for both eyes			
	Horizontal			
	Lens for one eye	Base out	Base in	Vertical
Prism dioptre	0.125	0.75	0.25	0.25

### 6.4.5 Haze

In any portion of a new, clear zero-power lens 5 mm in diameter, up to 1.5 mm from the edge of each lens, the haze shall not exceed 2% when tested in accordance with Clause 12.7.

### 6.4.6 Luminous transmittance

The luminous transmittance of clear zero-power lenses shall be not less than 85% when tested in accordance with Clause 12.8, unless they are double-glazed, in which case the luminous transmittance shall be not less than 78%.

## 6.5 Zero-power filters

### Δ 6.5.1 Size, residual power, resolving power, and prismatic deviation

Zero-power filters shall meet the same requirements as clear zero-power lenses for size (Clause 6.4.1), residual power (Clause 6.4.2), resolving power (Clause 6.4.3), and prismatic deviation (Clause 6.4.4).

### 6.5.2 Transmittance

#### 6.5.2.1

The luminous transmittance measured at the centre of the filter shall lie in the range given in Table 1 for the shade number marked on the filter lens or plate, when tested in accordance with Clause 12.8.

#### 6.5.2.2

The luminous transmittance of any part of a filter lens for one eye shall lie between 0.89 times and 1.12 times the luminous transmittance at the centre of the lens. The luminous transmittance of any part of a filter plate or the viewing area of a filter face shield shall lie between 0.79 times and 1.26 times the luminous transmittance at the centre of the plate.

#### 6.5.2.3

Filter lenses for one eye shall be supplied in pairs in which the ratio of the luminous transmittance of the lighter lens to that of the darker lens, each measured at the centre of the lens, shall not exceed 1.26:1.