

# **SOBRELENTES** **OTG**



## **Descripción:**

Los anteojos de seguridad OTG de CLUTE, se han diseñado para proveer el nivel de protección ocular requerido contra altos impactos, para aquellos usuarios que además de lentes de seguridad, requieran el uso de lentes de prescripción.

## **CLUTE®**

## **Características:**

- Visor de policarbonato de alta transparencia, con tratamiento antirayadura.
- Diseño versátil que permite adaptarse a una amplia gama de anteojos con prescripción.
- Recubrimiento retardante anti empañamiento y resistencia ante la agresión química.
- Ofrece un alto nivel de protección frente a impactos.
- Patillas con ajuste telescópico y angular (4 posiciones) para confort y ajuste óptimo.
- Amplia protección lateral.
- Marco de policarbonato integrado al ocular en una sola pieza y un puente nasal integrado a la estructura ocular.
- Absorbe las radiaciones del espectro Ultravioleta en un 99.9%

## **Aplicaciones:**

- Minería.
- Construcción.
- Metalmecánica.
- Forestal.
- Fabricación en general.
- Agricultura.
- Industria y talleres de automóviles.
- Laboratorios.
- Trabajos con madera.
- Pintura y decoración.

## **Aprobaciones:**

- ANSI Z87.1 2003

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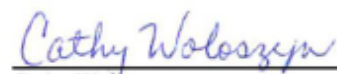
Test Report T13161-01-1 Issue 1  
ANSI/ISEA Z87.1-2015  
3904 Spectacles  
07 January 2019



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Date: 07 January 2019  
Report: T13161-01-1  
Issue: 1  
Page: 1 of 10

**Objective:**

Contract testing to ANSI/ISEA Z87.1-2015 "American National Standard for Occupational and Educational Personal Eye and Face Protection Devices".

- Clause(s): 5. General Requirements  
-excluding Markings  
6. Impact Protector Requirements  
7. Optical Radiation Protector Requirements  
-Ultraviolet Filters (Table 7)  
-Visible Light Filters (Table 9)  
-Special Purpose Lenses (Table 10)

**Samples:**

3904 Spectacles

Lens	Quantity	Sample ID
Clear	12	1A
Smoke	6	1B
Yellow	6	1C

Date(s) submitted: 26 December 2018

**Procedures:**

Testing protocols in accord with good laboratory practice were employed for all tests.

All tests were conducted in a standard laboratory atmosphere unless otherwise specified.

Samples were randomly selected from the quantity provided and tested in the as-received condition unless otherwise stated.

Testing procedures as specified within Section 9 of ANSI/ISEA Z87.1-2015 were followed unless noted in results.

When applicable, samples were assessed on medium headform (64mm PD).

Prismatic Power, Refractive Power, and Resolving Power are a function of lens geometry, not tint, therefore these tests were performed only on one tint variant of each lens type.

**Assessment Summary:**

Date(s) tested: 02 through 04 January 2019

Samples as assessed meet the requirements of ANSI/ISEA Z87.1-2015 for Impact Rated Spectacles.

**Assessment Summary (Continued):**

ANSI/ISEA Z87.1-2015 Requirements	Compliant	Non-Compliant
<b>5. General Requirements</b>		
<b>5.1 Optical Requirements</b>		
5.1.1 Optical Quality	X	
5.1.2 Luminous Transmission (Clear Lenses)	X	
5.1.3 Haze - Clear Lenses Only	X	
5.1.4 Refractive Power, Astigmatism, Resolving Power, Prism and Prism Imbalance for Plano Protectors	X	
5.1.5 Refractive Power, Astigmatism, Prism and Prism Imbalance for Prescription Protectors and Magnifiers	Not applicable	
<b>5.2 Physical Requirements</b>	X	
5.2.1 Drop Ball Impact Resistance	Not applicable	
5.2.2 Ignition	X	
5.2.3 Corrosion Resistance of Metal Components	Not applicable	
5.2.4 Minimum Coverage Area	X	
<b>5.3 Markings</b>	Excluded	
<b>5.4 Other Requirements</b>	Not applicable	
<b>5.5 Replaceable Lenses</b>	Not applicable	
5.5.1 Goggles (Welding)	Not applicable	
5.5.2 Welding Helmets and Handshields	Not applicable	
<b>5.6 Aftermarket Components and Accessories</b>	Not applicable	
<b>6. Impact-Rated Protector Requirements</b>		
<b>6.1 General</b>		
6.1.1 Protectors Marked for Impact Protection	See 6.2.2 and 6.2.3	
6.1.2 Frames and Shells	See 6.2.2 and 6.2.3	
6.1.3 Lateral (Side) Coverage	X	
<b>6.2 Impact Requirements</b>		
6.2.1 Protector Acceptance Criteria		
6.2.2 High Mass Impact	X	
6.2.3 High Velocity Impact	X	
6.2.4 Penetration Test (Lens Only)	X	
6.2.5 Prescription Lens Material Qualification	Not applicable	
6.2.6 Prescription Lens Mounting Qualification	Not applicable	
6.2.7 Devices with Lift Fronts	Not applicable	
<b>7. Optical Radiation Protector Requirements</b>		
7.1 Protectors with Clear Lenses	See 5.1.2	
7.2 Protectors providing Filtration of Optical Radiation		
7.2.1 Filter Lenses		
7.2.1.1 Transmission Requirements	X	
7.2.1.2 Visible Light Filters (ANSI Z80.3-2010)	X	
7.2.1.3 Variations in Luminous Transmittance (Welding)	Not applicable	
7.2.2 Transmittance of Non Lens Components (Goggles & Sheldshields)	Not applicable	

**Summary of Optical Radiation Requirements:**

Lens	ANSI Z87.1 Filter Scale Met	ANSI Z80.3-2010 Transmittance Requirements Met
Clear	U6	Not applicable
Smoke	U6 L3	Medium to Dark, Ultraviolet High or Prolong Exposure, Suitable for Driving
Yellow	U6	Not applicable

**Results:**

**5.1.1 Optical Quality; Result: Pass**

Sample (1A-1) Lens is free of striae, bubbles, waves and other visible defects which would impair their optical quality.

**5.1.2 Luminous Transmittance (Tv) - ILLA (Clear Lenses)**

Sample ID	Left (%)	Right (%)	Left/Right	Pass	Fail
1A-2	92.0	92.0	1.000	X	
Requirement:	$100 \geq T_L \geq 85$		N/A		

**5.1.3 Haze - Clear Lens Only**

Sample ID	Left (%)	Right (%)	Pass	Fail
1A-1	0.26	0.21	X	
Requirement:	$\leq 3$			

Measured relative to Illuminate A.

**5.1.4 Refractive Power, Astigmatism, Resolving Power, Prism and Prism Imbalance for Plano Protectors**

**Refractive Power & Astigmatism**

Sample ID	Left ( $m^{-1}$ )		Right ( $m^{-1}$ )		Pass	Fail
	Refractive Power	Astigmatism	Refractive Power	Astigmatism		
1A-1	0.00	0.02	-0.01	0.03	X	
Requirement:	$\pm 0.06$	$\leq 0.06$	$\pm 0.06$	$\leq 0.06$		

Tested in a simulated as worn position using a 19mm aperture.

**Resolving Power**

Sample ID	Left	Right	Pass	Fail
1A-1	20	20	X	
Requirement:	Pattern 20			

Tested in a simulated as worn position using a 19mm aperture.

**Prism and Prism Imbalance**

Sample ID	Prismatic Power (cm/m)		Vertical Imbalance(cm/m)	Horizontal Imbalance(cm/m)	Pass	Fail
	Left	Right				
1A-1	0.05	<0.05	<0.05	<0.05 Base Out	X	
Requirement:	$\leq 0.50$		$\leq 0.25$	Base Out $\leq 0.50$ Base In $\leq 0.25$		



**5.2 Physical Requirements; Results: Pass**

Protectors are free from projections, sharp edges or other defects which are likely to cause discomfort or injury during use.

**5.2.1 Drop Ball Impact Resistance**

Protectors meeting the requirements of 6.2 are exempt from drop ball impact testing

**5.2.2 Ignition; Results: Pass**

Components tested (Lenses and Temple) did not ignite or continue to glow once the rod is removed.

**5.2.4 Minimum Coverage Area; Result: Pass**

The frames, lens housings or carriers and lens(es) cover in plane view an area of not less than 40 mm (1.57 in.) in width and 33 mm (1.30 in.) in height (elliptical) in front of each eye, centered on the geometrical center of the lens.

**6.1.1 Protectors Marked for Impact Protection**

Protectors and replaceable components marked for impact protection in accordance with Table 3 shall meet applicable requirements of Section 6.

**6.1.2 Frames and Shells**

Frames and shells shall meet the requirements for high mass impact and high velocity impact in order to be impact-rated. These components shall be tested as a complete device. For frames and shells to be used with prescription lenses, they shall be fitted with representative test lenses having a nominal plano power and an minimum lens thickness to be used by the manufacturer, in no case less than 2.0mm (0.079in). Frames and shells are exempt from the penetration requirement.

**6.1.3 Lateral (Side) Coverage; Result: Pass**

When mounted on the medium headform protectors provide continuous lateral coverage (i.e. no openings greater than 1.5mm (0.06 in.) in diameter) from the vertical plane of the lenses tangential to a point not less than 10 mm (0.394 in.) posterior to the corneal plane and not less than 10 mm (0.394 in.) in height above and not less than 10 mm (0.394 in.) in height below the horizontal plane centered on the eyes of the headform. The probe does not contact the headform within the defined coverage area.

**6.2.1 Protector Acceptance Criteria**

When each type test is conducted as indicated in Sections 6.2.2, 6.2.3 and 6.2.4 and, as applicable Section 6.2.6, a complete device shall fail if any of the following occurs:

- any part, fragment or material visible to the unaided eye becomes detached from the inner surface of any complete device, as determined by inspection of the device or of the contact paste;
- fracture;
- penetration of the inner surface either by the projectile passing completely through the lens, frame or housing component, or by rupture of the inner lens surface;
- lens not retained;
- for the high-velocity test, the unaided eye observes any piece adhering to the contact paste, or observes contact paste on the projectile or complete device.

In the case of plano protectors with a prescription lens carrier, contact of the prescription lens carrier with the headform does not constitute a failure.

#### 6.2.2 High Mass Impact

Sample ID	Location	Pass	Fail
<b>Clear</b>			
1A-3	Right	X	
1A-4	Left	X	
1A-5	Right	X	
1A-6	Left	X	
<b>Smoke</b>			
1B-2	Right	X	
1B-3	Left	X	
<b>Yellow</b>			
1C-2	Right	X	
1C-3	Left	X	

#### 6.2.3 High Velocity Impact

Sample ID	Location	Velocity (ft/sec)	Pass	Fail
<b>Clear</b>				
1A-7	Right 0°	150.7	X	
1A-8	Right 30°	151.1	X	
1A-9	Right 90° ↑ 10mm	151.3	X	
1A-10	Left 0°	150.4	X	
1A-11	Left 30°	151.3	X	
1A-12	Left 90° ↓ 10mm	151.4	X	
<b>Smoke</b>				
1B-4	Right 0°	151.5	X	
1B-5	Left 0°	151.6	X	
<b>Yellow</b>				
1C-4	Right 0°	152.2	X	
1C-5	Left 0°	151.2	X	

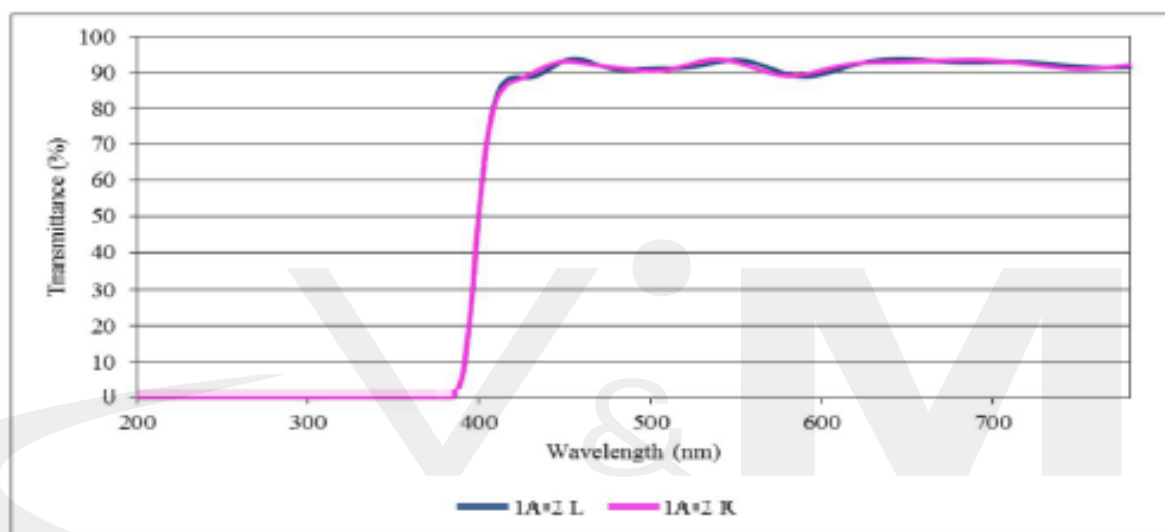
#### 6.2.4 Penetration Test (Lenses Only)

Sample ID	Location	Pass	Fail
1A-3	Left	X	
1A-4	Right	X	
1A-5	Left	X	
1A-6	Right	X	

### 7.2.1.1 Transmission Requirements – Clear

#### -Ultraviolet Filters (Table 7)

Sample ID:	1A-2L	1A-2R	Requirement (U6)	Pass	Fail
Far-Ultraviolet (200 to 315nm) (%)	0.00034	0.00033	$\leq 0.01$	X	
Near-Ultraviolet (315 to 380nm) (%)	0.0014	0.0015	$\leq 0.1$	X	





### 7.2.1.1 TRANSMISSION REQUIREMENTS – SMOKE

#### -Ultraviolet Filters (Table 7)

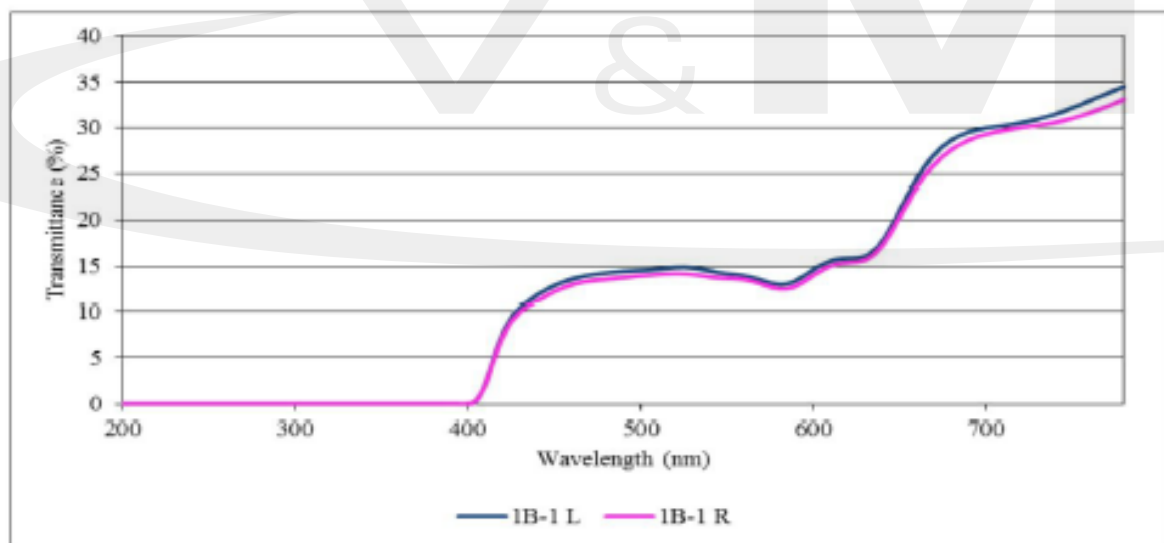
Sample ID:	1B-1L	1B-1R	Requirement (U6)	Pass	Fail
Far-Ultraviolet (200 to 315nm) (%)	0.00002	0.00002	$\leq 0.01$	X	
Near-Ultraviolet (315 to 380nm) (%)	0.00003	0.00003	$\leq 0.1$	X	

#### -Visible Light Filters (Table 9)

Sample ID:	1B-1L	1B-1R	Requirement (L3)	Pass	Fail
Luminous ( $T_L$ )-ILLA(%)	14.8	14.2	8.5 to 18	X	

#### -Special Purpose Lenses (Table 10)

Sample ID:	1B-1L	1B-1R	Left/Right	Pass	Fail
Luminous ( $T_L$ )-ILLA (%)	13.6	13.6	0.986	X	
Requirement:					
Tinted:	$100 > T_L \geq 8$		$1.10 \geq L/R \geq 0.90$		
Extra Dark:	$8 > T_L \geq 0.2$		$1.20 \geq L/R \geq 0.80$		



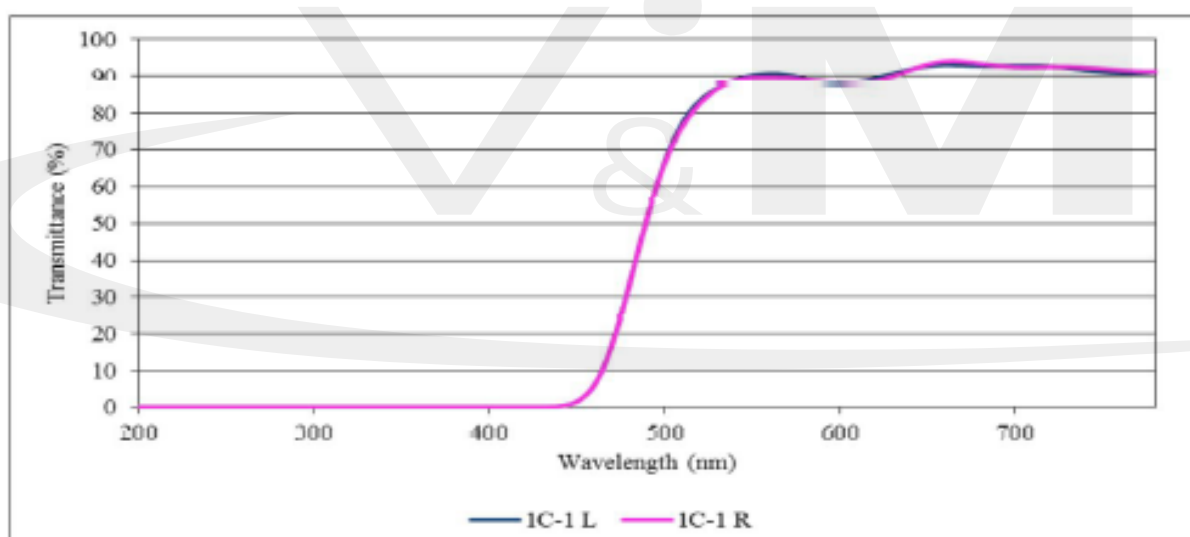
### 7.2.1.1 Transmission Requirements – Yellow

#### -Ultraviolet Filters (Table 7)

Sample ID:	1C-1L	1C-1R	Requirement (U6)	Pass	Fail
Far-Ultraviolet (200 to 315nm) (%)	0.00004	0.00004	$\leq 0.01$	X	
Near-Ultraviolet (315 to 380nm) (%)	0.00005	0.00005	$\leq 0.1$	X	

#### -Special Purpose Lenses (Table 10)

Sample ID:	1C-1L	1C-1R	Left/Right	Pass	Fail
Luminous ( $T_L$ )-ILLA (%)	88.4	88.0	1.005	X	
Requirement:					
Tinted:	$100 > T_L \geq 8$		$1.10 \geq L/R \geq 0.90$		
Extra Dark:	$8 > T_L \geq 0.2$		$1.20 \geq L/R \geq 0.80$		



**7.2.1.2 Visible Light Filters (ANSI Z80.3 2010 Table 1 Transmittance Requirements and Traffic Signal Recognition)**

**-Smoke**

Smoke					
Sample ID:	1B-1L	1B-1R	Requirement (Medium to Dark)	Pass	Fail
4.6.1 Luminous (Tv) - ILLC (%)	14.5	14.0	8 to 40	X	
4.6.2 Mean Transmittance					
-UVB (280 to 315nm) (%)	0.00003	0.00003	≤ 1	X	
UVA (315 to 380nm) (%)	0.00002	0.00002	≤ 0.5Tv	X	
4.6.3 Transmittance Properties Related to Traffic Signal Recognition					
4.6.3.1 Color Limits					
-Yellow (x,y)	0.590, 0.408	0.590, 0.408	See ANSI Z80.3 Figure 1	X	
-Green (x,y)	0.207, 0.117	0.208, 0.118		X	
-D65 (x,y)	0.330, 0.346	0.332, 0.347		X	
4.6.3.2 Traffic Signal Transmittance					
-Luminous (Tv) - ILLC (%)	14.5	14.0	≥ 8	X	
-Red (%)	18.8	18.2	≥ 8	X	
-Yellow (%)	14.9	14.4	≥ 6	X	
-Green (%)	14.3	13.8	≥ 6	X	
4.6.3.3 Spectral Transmittance					
-Min. 475 to 650nm (%)			≥ 0.2Tv		

UVB and UVA limits are for High or Prolonged Exposure.

**Sample Photographs:**



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