

**TEST REPORT**

**Date:** January 12, 2010

**Report:** 10005187

**Issue:** 1

**Company:** **Elvex Corp.**

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**Test:** ANSI Z87.1-2003 “Practice for Occupational and Educational Eye and Face Protection” Section 7.

**Models:** **SG-25**

Sample A (SG-25C) – Black frame/temples with Clear-HC lens x 30 pcs

Sample B (SG-25WS3) – Black frame/temples, with IR3-HC lens x 16 pcs

Sample C (SG-25WS5) – Black frame/temples, with IR5-HC lens x 16 pcs



**Test Results:**

**7.4.2.1.1 High Mass Impact**

High impact spectacles shall be capable of resisting an impact from a pointed projectile weighing 500 g (17.6 oz) dropped from a height of 127 cm (50.0 in). The spectacles shall be tested in accordance with section 14.1. No piece shall be detached from the inner surface of any spectacle component and the lens shall be retained in the frame. In addition, the lens shall not fracture.

Left eye sample A1, B1, C1	PASS
Left eye sample A2, B2, C2	PASS
Right eye sample A3, B3, C3	PASS
Right eye sample A4, B4, C4	PASS

**7.4.2.1.2 High velocity Impact**

High impact spectacle shall be capable of resisting an impact from a 6.35 mm (0.25 in) diameter steel ball traveling at a velocity of 45.7 m/s (150 ft/s). The spectacles shall be tested in accordance with section 14.2. No contact with the eye of the headform is permitted as a result of impact. No piece shall be detached from the inner surfaces of any spectacle component and the lens shall be retained in the frame. In addition, the lens shall not fracture.

Velocity (ft/s)

<u>Impact Location</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>Result</u>
Left eye 15° nasal	159	---	---	---	PASS
Left eye 0° nasal	157	158	155	---	PASS
Left eye 15° temporal	156	---	---	---	PASS
Left eye 30° temporal	154	---	---	---	PASS
Left eye 45° temporal	154	159	155	---	PASS
Left eye 60° temporal	154	---	---	---	PASS
Left eye 75° temporal	159	---	---	---	PASS
Left eye 90° temporal	158	159	157	---	PASS
Left eye 90° temporal +10 mm	158	---	---	---	PASS
Left eye 90° temporal -10 mm	155	---	---	---	PASS
Right eye 15° nasal	156	---	---	---	PASS
Right eye 0° nasal	155	158	158	---	PASS
Right eye 15° temporal	154	---	---	---	PASS
Right eye 30° temporal	155	---	---	---	PASS
Right eye 45° temporal	158	156	159	---	PASS
Right eye 60° temporal	157	---	---	---	PASS
Right eye 75° temporal	155	---	---	---	PASS
Right eye 90° temporal	158	156	158	---	PASS
Right eye 90° temporal +10 mm	157	---	---	---	PASS
Right eye 90° temporal -10 mm	156	---	---	---	PASS

## **Optical Laboratories**

Lab Temp: 23°C

Lab RH: 47

### **7.4.2.1.3 Penetration Test (For Plastic lenses only)**

High Impact plano spectacle lens shall be capable of resisting penetration from a weighted projectile weighing 44.2 gm (1.56 oz) dropped from a height of 127 cm (50.0 in) when tested in accordance with section 14.5. The lens shall not fracture or be pierced through as a result of this test. No piece shall be detached from the inner surface of any spectacle component and the lens shall be retained in the frame.

**PASS**

### **7.4.2.2 Thickness**

When used in a frame marked Z87-2, the lenses shall be not less than 2.0 mm (0.079 in) thick.

**PASS**

### **7.4.3.1 Optical Qualities**

The lenses shall be free of striae, bubbles, waves, and other visible defects and flaws which would impair their optical quality per the specifications and test methods in ANSI Z87.1-2003.

**PASS**

### **7.4.3.2 Prismatic Power**

Complete devices shall be tested in accordance with section 14.9. The prismatic power shall not exceed 0.50  $\Delta$  in any direction. Vertical prism imbalance shall not exceed 0.25  $\Delta$ , and horizontal prism imbalance shall not exceed 0.25  $\Delta$  "Base In" or 0.50  $\Delta$  "Base Out".

	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>Result</u>
Complete Prism	0.02	0.08	0.03	---	<b>PASS</b>
Vertical Imbalance	0.03	0.10	0.06	---	<b>PASS</b>
Horizontal Imbalance In/Out	0.05 base out	0.08 base out	0.01 in	---	<b>PASS</b>

### **7.4.3.3 Refractive Power**

Complete devices shall be tested in accordance with section 14.10. The refractive power, in any meridian, shall not exceed +/- 0.06 D. The maximum astigmatism (the absolute difference in power measured in the two extreme meridians) shall not exceed 0.06D.

	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>Result</u>
Refractive Left	0	0.01	0	---	<b>PASS</b>
Refractive Right	0	0	0	---	<b>PASS</b>
Max Astigmatism Left	0	0.02	0	---	<b>PASS</b>
Max Astigmatism Right	0	0	0.02	---	<b>PASS</b>

### **7.4.3.4 Resolving Power**

Lens shall be tested for resolving power in accordance with section 14.10. All lines in both orientations of NBS Pattern 20 shall be clearly resolved.

	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>Result</u>
Left	24	20	24	---	<b>PASS</b>
Right	24	24	24	---	<b>PASS</b>

**7.4.3.5 Haze**

Clear plano lenses shall exhibit not more than 3% when tested in accordance with section 14.11.

Clear Plano lenses                      0.43%                      **PASS**

**7.4.3.6 Transmittance**

Plano lenses shall comply with the requirements specified in table 1 for clear or filter lenses, or table 2 for special purposes lenses. Measurements shall be taken in accordance with section 14.12.

	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>Result</u>
Luminous Left eye	93.2%	13.2%	1.97%	---	<b>PASS</b>
Luminous Right eye	92.7%	13.3%	1.94%	---	<b>PASS</b>
Tinted: $0.90 \leq R \leq 1.10$	N/A	0.992	1.015	---	<b>PASS</b>

**7.6 Flammability**

The front, temple, lens and removable sideshields shall be tested in accordance with section 14.6. The material shall not burn at a rate greater than 76 mm (3 in) per minute.

Lens                      self extinguished, did not burn                      **PASS**  
Front                      self extinguished, did not burn                      **PASS**  
Temple                      self extinguished, did not burn                      **PASS**  
Sideshield                      self extinguished, did not burn                      **PASS**

**7.7 Corrosion Resistance**

Spectacles shall be tested in accordance with section 14.7. Metal components used in spectacles as utilized on the device shall be corrosion resistant to the degree that the function of the spectacles shall not be impaired by the corrosion. Lenses and electrical components are excluded from these requirements.

**PASS**

**7.8 Cleanability**

Spectacles shall be capable of being cleaned in accordance with section 14.8. The function and markings of the spectacles shall not be impaired by the cleaning process.

Function                      **PASS**  
Markings                      **PASS**

**7.10 Marking**

All markings shall be permanent, legible, and placed so that interference with the vision of the wearer is minimal.

**PASS**