

# **TEST RESULTS and REPORT**

**for**

## **3M OH&ES Division**

### **Visitor Spectacle (1611)**

by



**COLTS Laboratories maintains A2LA accreditation to ISO/IEC 17025 for the tests listed on Certificate # 1612.01. Any tests not included on this certificate have been identified on the appropriate test result page.**

**Also certified for testing by the Safety Equipment Institute**

### **Z-3M5062706-01**

- Results in this report only relate to the samples analyzed.
- This report shall not be reproduced, except in full, without written approval from COLTS Laboratories.
- Unless otherwise requested, test samples will be discarded 60 days from the report date.

**COLTS Laboratories**

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A2LA Accredited-Certificate # 1612.01

**3M OH&ES Division**  
**Z-3M5062706-01**

**SUMMARY**  
**REPORT**

<b>Project ID</b>	<b>Test /Model(s)</b>	<b>Results Pass / Fail</b>	<b>Reason</b>	<b>Page</b>
Z-3M5062706-01-01	ANSI Z87.1-2003 Spectacles Complete Visitor Spectacle (1611) - Clear Temples, Clear Lens	Pass		1

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## **Report Summary**

**Report To:**

3M OH&ES Division  
3M Center, Bldg 235 - 2E-80  
St Paul, MN 55114

**Attn:** Lawrence Effertz

**Date:** 7/21/2006

On 6/30/2006, COLTS Laboratories received Spectacles, Model: Visitor Spectacle (1611) - Clear Temples, Clear Lens from 3M OH&ES Division . Starting on 6/30/2006 through 7/20/2006 COLTS Laboratories tested these Spectacles in accordance with ANSI Z87.1-2003 Standards.

**Final Conclusion:**

The 3M OH&ES Division Spectacles Model: Visitor Spectacle (1611) - Clear Temples, Clear Lens does comply with the ANSI Z87.1-2003 Standards for test(s) performed for ANSI Z87.1-2003 Spectacles Complete.

Please contact us should you have any questions concerning this report.

**Respectfully submitted,**

COLTS Laboratories

A handwritten signature in blue ink that reads "D. A. Costello".

Dave Costello  
Lab Manager

**PROJECT**

**Report of:** ANSI Z87.1-2003 Spectacles Complete  
**of Model(s):** Visitor Spectacle (1611) - Clear Temples, Clear Lens  
**Project ID(s):** Z-3M5062706-01-01



A handwritten signature in blue ink that reads "John M. Young".

John M. Young  
President

Report To: 3M OH&ES Division

Project No. Z-3M5062706-01-01



A2LA Accredited-Cert .#1612.01

Sample ID:  
Visitor Spectacle (1611) - Clear Temples, Clear Lens

Report Date: 7/21/2006

### Report of: ANSI Z87.1-2003 Spectacles Complete

Lab Temp (°C) : 23

Lab Rh : 51

Test/Property	ANSI Z87.1-2003 Paragraph	Requirement	Test Results	Acceptance
Spectacle Frame Test	7.2	For the purpose of these tests, frames shall be equipped with test lenses.	Acceptable	Pass
High Mass Impact	7.2.1 7.4.2.1.1	No piece shall be detached from the inner surface of any spectacle component, and the test lens shall be retained in the frame. In addition, the lens shall not fracture.	Acceptable	Pass
High Velocity Impact	7.2.2 7.4.2.1.2	No contact with the eye of the headform is permitted as a result of impact. No piece shall be detached from the inner surface of any frame component, and the test lens shall be retained in the frame. In addition, the lens shall not fracture.		
		Left Eye Nasal 15 deg	151 fps	Pass
		Left Eye Nasal 0 deg	152 fps	Pass
		Left Eye Temporal 15 deg	151 fps	Pass
		Left Eye Temporal 30 deg	148 fps	Pass
		Left Eye Temporal 45 deg	151 fps	Pass
		Left Eye Temporal 60 deg	151 fps	Pass
		Left Eye Temporal 75 deg	151 fps	Pass
		Left Eye Temporal 90 deg	151 fps	Pass
		Left Eye 10 mm Above at 90 deg Temporal	151 fps	Pass
		Left Eye 10 mm Below at 90 deg Temporal	147 fps	Pass
		Right Eye Nasal 15 deg	150 fps	Pass
		Right Eye Nasal 0 deg	151 fps	Pass
		Right Eye Temporal 15 deg	152 fps	Pass



## Report of: ANSI Z87.1-2003 Spectacles Complete

Lab Temp (°C) : 23

Lab Rh : 51

Test/Property	ANSI Z87.1-2003 Paragraph	Requirement	Test Results	Acceptance	
High Velocity Impact	7.2.2	No contact with the eye of the headform is permitted as a result of impact. No piece shall be detached from the inner surface of any frame component, and the test lens shall be retained in the frame. In addition, the lens shall not fracture. Right Eye Temporal 30 deg	155 fps	Pass	
	7.4.2.1.2		Right Eye Temporal 45 deg	151 fps	Pass
			Right Eye Temporal 60 deg	150 fps	Pass
			Right Eye Temporal 75 deg	153 fps	Pass
			Right Eye Temporal 90 deg	151 fps	Pass
			Right Eye 10 mm Above at 90 deg Temporal	150 fps	Pass
			Right Eye 10 mm below at 90 deg Temporal	151 fps	Pass
	Penetration Test		7.3.3 7.4.1, 7.4.2.1.3	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.	Acceptable
Optical Qualities	7.4.3.1 7.5.3	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 Z80.1-1999.	Acceptable	Pass	
Prismatic Power	7.4.3.2	The prismatic power shall not exceed 0.50 diopters in any direction. Vertical prism imbalance shall not exceed 0.25 diopters, and horizontal prism imbalance shall not exceed 0.25 diopters "Base In" or 0.50 diopters "Base Out". Complete Prism	0.224	Pass	
		Vertical Imbalance	0.00	Pass	
		Horizontal Imbalance Out	0.20	Pass	



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Test/Property	ANSI Z87.1-2003 Paragraph	Requirement	Test Results	Acceptance
Refractive Power	7.4.3.3	The refractive power, in any meridian, shall not exceed +/- 0.06D. The maximum astigmatism (the absolute difference in power measured in the two extreme meridians) shall not exceed 0.06D.		
		Refractive Left	-0.015	Pass
		Refractive Right	-0.02	Pass
		Maximum Astigmatism Left	0.025	Pass
		Maximum Astigmatism Right	0.02	Pass
Resolving Power	7.4.3.4	All lines in both orientations of NBS Pattern 20 shall be clearly resolved.		
		Left	28	Pass
		Right	28	Pass
Haze	7.4.3.5	Clear plano lenses shall exhibit not more than 3% haze when tested in accordance with section 14.11.	0.49	Pass
Transmittance	7.4.3.6	Plano lenses shall comply with the requirements specified in table 1 for clear or filter lenses, or table 2 for special purpose lenses. Table 1: 0.90 <= R <= 1.10 (clear to shade 3 lenses) 0.80 <= R <= 1.25 (shade 4 and higher) Table 2: 0.90 <= R <= 1.10 (LT Max% 100, Min% 8) 0.80 <= R <= 1.20 (LT Max% <8, Min% 0.2)		
		Luminous Left eye	89.6	Pass
		Luminous Right eye	89.6	Pass
		Luminous Ratio	1.00	Pass

Report To: 3M OH&ES Division

Project No. Z-3M5062706-01-01



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Sample ID:  
Visitor Spectacle (1611) - Clear Temples, Clear Lens

Report Date: 7/21/2006

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Lab Temp (°C) : 23

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Test/Property	ANSI Z87.1-2003 Paragraph	Requirement	Test Results	Acceptance
Flammability	7.6	The material shall not burn at a rate greater than 76 mm (3 in) per minute.		
		Lens	12 mm/min	Pass
		Temple	Self Extinguished	Pass
Cleanability	7.8	The function and markings of the spectacles shall not be impaired by the cleaning process.	Acceptable	Pass
Marking	7.10	All Markings shall be permanent, legible, and placed so that interference with the vision of the wearer is minimal.	Acceptable	Pass
Markings for Products with Non-Removable Lens	7.10.3	Spectacles with non-removable lenses shall only require one marking. This marking may be placed on the front or one of the temples and shall consist of the manufacturers identifying mark or symbol. Additionally either "Z87" indicating compliance with the basic impact requirements of this standard, or "Z87+" indicating compliance with high impact requirements of the standard shall be marked. If applicable a shade number, special purpose lens mark (S), or photochromic lens mark (V) shall be indicated. See Section 7.10.2 for more information.	Acceptable	Pass