

TEST RESULTS and REPORT

for LIBUS PPE EVOLUTION

by



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Also Certified for testing by the Safety Equipment Institute

Z-LIB032116-01

- Results in this report only relate to the samples analyzed.
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- Unless otherwise requested, test samples will be discarded 21 days from the report date.

COLTS Laboratories

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**PRODUCT
RESULTS
SUMMARY**

A2LA Accredited Certificate # 1612.01

**LIBUS PPE
Z-LIB032116-01-01**

Project ID	Test/Models(s)	Results Pass / Fail	Reason	Page
Z-LIB032116-01-01	ANSI Z87.1-2015 High Impact Spectacles - Base Model EVOLUTION Clear Lens with Black and Green Temples	Pass		1

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**Report
Summary**

A2LA Accredited Certificate # 1612.01

Report To:

LIBUS PPE
Calle 21 Nro. 1213
Berazategui, Bs.As.

Project

of Model(s): EVOLUTION
Report of: ANSI Z87.1-2015 High Impact Spectacles - Base Model
Project ID(s): Z-LIB032116-01-01



Attn: Miguel Caro

Date: April 18, 2016

Product Description: Clear Lens with Black and Green Temples

On March 21, 2016, COLTS Laboratories received Spectacles: EVOLUTION from LIBUS PPE. From March 21, 2016 through April 18, 2016 COLTS Laboratories tested these Spectacles in accordance with ANSI Z87.1-2015.

Final Conclusion:

The Spectacles: EVOLUTION (Clear Lens with Black and Green Temples) do comply with ANSI Z87.1-2015 for the test(s) performed for ANSI Z87.1-2015 High Impact Spectacles - Base Model.

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

Respectfully submitted,

COLTS Laboratories

Daryl Neely
Vice-President & COO

Dale Payne
Technical Services Manager

Report To: LIBUS PPE
 Project No: Z-LIB032116-01-01



Sample ID:
 EVOLUTION
 Clear Lens with Black and Green Temples

A2LA Accredited Certificate # 1612.01

Report Date: 4/20/2016

Lab Temp (C): 24
 Lab Rh: 44

Report of: ANSI Z87.1-2015 High Impact Spectacles - Base Model

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Spectacle Refractive Power, Astigmatism, Resolving Power, Prism and Prism Imbalance for Plano Protectors	5.1.4	When tested in accordance with Section 9.4, the tolerance on refractive power, astigmatism and resolving power shall be as indicated in Table 1.		
		When tested in accordance with Section 9.5, the tolerance on prism and prism imbalance shall be as indicated in Table 2.		
		Filter lenses of shade 9 or higher are exempt from this testing.		
		Prismatic Imbalance	Acceptable	Pass
		Vertical (0.25 Max)	0.05	Pass
		Horizontal Base In/Out (In 0.25 Max; Out 0.50 Max)	0.15 out	Pass
Physical Requirements	5.2	Protectors shall be free from: projections, sharp edges or other defects which are likely to cause discomfort or injury during use.	Acceptable	Pass
Ignition (Spectacle)	5.2.2	When tested in accordance with Section 9.7, protectors shall not ignite or continue to glow once the rod is removed. Each externally exposed material (exclusive of textiles or elastic bands) shall be tested.		
		Lens	Acceptable	Pass
		Front	N/A	N/A
		Temple	Acceptable	Pass
		Sideshield	N/A	N/A
		Other	N/A	N/A
Corrosion Resistance of Metal Components	5.2.3	When tested in accordance with Section 9.8, metal components used in protectors shall be corrosion resistant to the degree that the function of the protector shall not be impaired by the corrosion and the protector can be worn as intended. Lenses and electrical components are excluded from these requirements.		
		Corrosion Resistant	Acceptable	Pass
Minimum Coverage Area	5.2.4	The frames, lens housings or carriers and lens(es) shall 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.		
		Frames, lens housing or carrier and lens(es) designed for small head sizes shall cover in plane view an area of not less than 34 mm (1.34 in.) in width and 28 mm (1.10 in.) in height (elliptical), centered on the geometrical center of the lens.		
		Minimum Coverage Area	Acceptable	Pass

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Report To: LIBUS PPE
 Project No: Z-LIB032116-01-01



Sample ID:
 EVOLUTION
 Clear Lens with Black and Green Temples

A2LA Accredited Certificate # 1612.01

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Report of: ANSI Z87.1-2015 High Impact Spectacles - Base Model

Test/Property	Paragraph	Requirement	Test Results	Acceptance	
Required Protector Markings (Spectacles)	5.3	All protectors shall bear the permanent and legible markings in specified locations as shown in Table 3. Markings for lens type and use applications shall be required only when claims for protection against the hazard or indicated use are made by the manufacturer.			
		Protector markings shall be placed in relatable proximity to each other on the product in the sequence specified below:			
		- Manufacturer's marks or logos			
		- Designation of standard (Z87 or Z87-2, for prescription devices)			
		- Individual claims of compliance			
		- impact-rated marking (+)			
		- lens type			
		- use applications			
		Manufacturer's marks or logos are exempt from the proximity requirement if they are clearly present elsewhere on the product.			
		Markings representative of other standards shall not interfere with or be intermixed with the markings required by this standard.		N/A	N/A
		Markings permanent, legible and in relatable proximity		N/A	N/A
		Complete Device Markings		N/A	N/A
		Sequence Correct		N/A	N/A
		Mfg Mark or Logo		N/A	N/A
Z87 Mark		N/A	N/A		
+ Mark		N/A	N/A		
H Mark (Coverage - small head sizes)		N/A	N/A		
Lens Type (multiple claim sequence W,U,L,R,V,S)		N/A	N/A		
Use (multiple claim sequence D3,D4,D5)		N/A	N/A		
			Not assessed per customer request		
Frames for Removable Lenses	5.4.4	All frames which can house removable lenses shall be supplied with detailed specifications on the required lens bevel design or mounting technique and nominal lens sizing.			
		Specifications supplied	N/A	N/A	
Aftermarket Components and Accessories	5.6	All original equipment manufacturers (OEM) and non-OEM aftermarket components not sold with the original device shall be tested.			
		Aftermarket Components and Accessories	Manufacturer requirement	Not testable	

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Test/Property	Paragraph	Requirement	Test Results	Acceptance
Protectors Marked for Impact Protection	6.1.1	Protectors and replaceable components marked for impact protection in accordance with Table 3 shall meet applicable requirements of Section 6.		
		Impact requirements	Acceptable	Pass
		Marking requirements	N/A	N/A
Not assessed per customer request				
Frames and Shells	6.1.2	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 the minimum lens thickness to be used by the manufacturer, in no case less than 2.0 mm (0.079 in.). Frames and shells are exempt from the penetration requirement		
		Frames and Shells	Acceptable	Pass
Lateral (Side) Coverage	6.1.3	When tested in accordance with Section 9.10, impact rated protectors shall 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 (0.39 in.) posterior to the corneal plane and not less than 10 mm (0.39 in.) in height (or 8 mm (0.32 in.) for the smaller headform) above and not less than 10 mm (0.39 in.) in height (or 8 mm (0.32 in.) for the smaller headform) below the horizontal plane centered on the eyes of the headform. The probe shall not contact the headform within the defined coverage area.		
		Lateral (Side) Coverage	Acceptable	Pass
High Mass Impact	6.2.2	When tested in accordance with Section 9.11, the complete device shall meet the protector acceptance criteria when impacted by a pointed projectile weighing a minimum of 500 g (17.6 oz) dropped from a height of at least 127 cm (50.0 in.).		
		Left Eye Sample 1	Acceptable	Pass
		Left Eye Sample 2	Acceptable	Pass
		Right Eye Sample 3	Acceptable	Pass
		Right Eye Sample 4	Acceptable	Pass
High Velocity Impact (Spectacles)	6.2.3	When tested in accordance with Section 9.12, the complete device shall meet the protector acceptance criteria when impacted by a 6.35 mm (0.25 in) diameter steel ball traveling at 150 feet per second.		
		Left Eye Center	150 fps	Pass
		Left Eye 30°	149 fps	Pass

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Test/Property	Paragraph	Requirement	Test Results	Acceptance
High Velocity Impact (Spectacles)	6.2.3	When tested in accordance with Section 9.12, the complete device shall meet the protector acceptance criteria when impacted by a 6.35 mm (0.25 in) diameter steel ball traveling at 150 feet per second.		
		Right Eye Center	153 fps	Pass
		Right Eye 30°	152 fps	Pass
		One Side 90° at 10mm Above (H - 8mm)	150 fps	Pass
		Opposite Side 90° at 10mm Below (H - 8mm)	148 fps	Pass
Penetration Test (lenses only)	6.2.4	When tested in accordance with Section 9.13, lenses for all complete devices shall meet the protector acceptance criteria when penetrated by a weighted needle with a minimum total weight of 44.2 g (1.56 oz) dropped from a height of at least 127 cm (50.0 in.).		
		Left Eye Sample 1	Acceptable	Pass
		Left Eye Sample 2	Acceptable	Pass
		Right Eye Sample 3	Acceptable	Pass
		Right Eye Sample 4	Acceptable	Pass
Devices with Lift Fronts	6.2.7	Complete devices with lift fronts shall meet the applicable requirements of Section 6 with the lift front in the "up" position.		
		Lift front in "up" position	N/A	N/A
Protectors with Clear Lenses	7.1	When tested in accordance with Section 9.2, clear plano, reader, magnifier and prescription lenses shall have a luminous transmission of not less than 85%. Representative test lenses of plano power may be substituted for prescription, reader or magnifier lenses in this test.		
		Transmittance	Acceptable	Pass

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APPENDIX 1
ANSI Z87.1 - 2015 Measurement Uncertainty Values

Section	Requirement	Uncertainty
5.1.2	Luminous Transmittance	0.41%
5.1.3	Haze	0.41%
5.1.4	Refractive Power & Astigmatism	0.007D
5.1.4	Prism	0.01Δ
5.4.3.1	Welding Protectors – Transmittance of Non-Lens Area	0.000017%
5.1.5	Refractive Power & Astigmatism and Prism for Rx Protectors and Mganifiers	See 5.1.4
5.4.5	Minimum Lens Thickness	0.1 mm
5.5.1	Replaceable Lenses – Goggles	0.1 mm
5.5.2	Replaceable Lenses – Welding Helmets and Handshields	0.1 mm
7.2.1.1	Transmission Requirements	Table 6 (Welding Filters) See 7.3 Table 7 EFUV 0.0000551% NUV 0.0000576% Table 8 (IR) 0.010395% Table 9 (VIS) See 7.1.3 W1.3 – W10 Table 10 Tinted 0.41% Extra Dark 0.0001944%
7.2.1.2	Visible Light Filters	Visible Light 0.41% UVA 0.0000576% UVB 0.0000551%
7.2.2	Transmittance of Non-lens Components	0.000017%
7.3	Automatic Darkening Welding Filter Lenses	W1.3 – W3.0 0.41% W4 0.0018287% W5 0.0003283% W6 0.0003605% W7 0.0000961% W8 0.0001944% W9 0.0000459% W10 0.0000706% W11 0.0000068% W12 0.0000055% W13 0.0000028% W14 0.0000017% EFUV 0.0000551% NUV 0.0000576% IR 0.010395%
7.3.3	Switching Index	0.0192 mSec