

TEST RESULTS and REPORT

for

CV Optics USA, Inc.

CV Optics

by



COLTS | Laboratories™

Precision Testing. Definitive Results.

**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-CVU123019-01

- Unless otherwise stated, results in this report apply only to the samples tested and not to lots from which they were taken.
- This report shall not be reproduced, except in full, without written approval from COLTS Laboratories.
- 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

**CV Optics USA, Inc.
Z-CVU123019-01-01**

COLTS Project ID	Test/Models(s)	Results Pass / Fail	Reason	Page
Z-CVU123019-01-01	ANSI Z87.1-2015 High Impact Prescription Lens Material Qualification CV Optics 1.60 Clear, Uncoated Lens	Pass		1

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**Report
Summary**

A2LA Accredited Certificate # 1612.01

Report To:

CV Optics USA, Inc.
314 Gabor Dr.
Newark, DE 19711

Project

of Model(s): CV Optics
Report of: ANSI Z87.1-2015
Project ID(s): Z-CVU123019-01-01

Attn: Kimberly Griffin

Date: January 10, 2020

Product Description: 1.60 Clear, Uncoated Lens

On December 30, 2019, COLTS Laboratories received Lenses: CV Optics from CV Optics USA, Inc. . From January 09, 2020 through January 10, 2020 COLTS Laboratories tested these Lenses in accordance with ANSI Z87.1-2015 to the following test protocol: ANSI Z87.1-2015 High Impact Prescription Lens Material Qualification.

Detailed test results are included.

Final Conclusion:

The Lenses: CV Optics (1.60 Clear, Uncoated Lens) do comply with ANSI Z87.1-2015 for the test(s) included in this report.

COLTS makes all statements of conformity (Pass/Fail) based on actual values reported, unless otherwise stated.

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: CV Optics USA, Inc.
 Project No: Z-CVU123019-01-01



Sample ID:
 CV Optics
 1.60 Clear, Uncoated Lens

A2LA Accredited Certificate # 1612.01

Report Date: 1/10/2020

Lab Temp (C): 23
 Lab Rh: 49

Report of: ANSI Z87.1-2015

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Prescription Lens Material Qualification	6.2.5	<p>When tested in accordance with Section 9.14, representative test lenses for use in prescription protectors shall be capable of resisting impact from a 6.35 mm (0.25 in.) diameter steel ball traveling at a velocity of 45.72 m/s (150 ft/s). When tested in accordance with this section, the lens shall fail if any of the following occurs:</p> <ul style="list-style-type: none"> - posterior displacement of the lens completely through the test holder; - fracture of the lens; - any detachment of a portion of the lens from its inner surface; or any full thickness penetration of a lens. <p>Failure of any lens constitutes a failure. If all test lenses pass, then any prescription lens of the same or greater thickness at its thinnest point, which is made by the same manufacturer, from the same material, with the same coatings and processes may bear the "+" mark.</p>		
		Sample 1	Acceptable	Pass
		Thickness: In no case less than 2.0 mm	2.07 mm	Pass
		Diameter: 55 mm +0.04 mm/-0.25 mm	55.03 mm	Pass
		Impact Resistance	150 fps	Pass
		Sample 2	Acceptable	Pass
		Thickness: In no case less than 2.0 mm	2.12 mm	Pass
		Diameter: 55 mm +0.04 mm/-0.25 mm	54.94 mm	Pass
		Impact Resistance	154 fps	Pass
		Sample 3	Acceptable	Pass
		Thickness: In no case less than 2.0 mm	2.12 mm	Pass
		Diameter: 55 mm +0.04 mm/-0.25 mm	55.04 mm	Pass
		Impact Resistance	153 fps	Pass

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APPENDIX 1
ANSI Z87.1 - 2015 Measurement Uncertainty Values

Section	Requirement	Uncertainty
5.1.2	Luminous Transmittance	0.19%
5.1.3	Haze	0.08%
5.1.4	Refractive Power & Astigmatism	0.018D
5.1.4	Prism	0.048Δ
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 0.19% 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 0.19% 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