

# **TEST RESULTS and REPORT**

**for**

**Küpfer Hermanos S. A.**

**"ATOX" Checklite**

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 and CSA International**

**Z-MCR050115-01**

- 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

**MCR Safety**

**Z-MCR050115-01**

<b>Project ID</b>	<b>Test/Models(s)</b>	<b>Results Pass / Fail</b>	<b>Reason</b>	<b>Page</b>
Z-MCR050115-01-01	ANSI Z87.1-2010 High Impact Spectacles - Base Model Checklite CL110 (ACL110) - Clear Lens with Clear Temples	Pass		1
Z-MCR050115-01-02	ANSI Z87.1-2010 High Impact Spectacles - Variant Checklite CL112 (ACL112) - Gray Lens with Gray Temples	Pass		7

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**Report  
Summary**

A2LA Accredited Certificate # 1612.01

**Report To:**

MCR Safety  
1255 Schilling Blvd West  
Collierville, TN 38017

**Project**

of Model(s): Checklite  
Report of: ANSI Z87.1-2010 High Impact Spectacles - Base Model  
Project ID(s): Z-MCR050115-01-01



**Attn:** Glen Herald Jr

**Date:** May 14, 2015

**Product Description:** CL110 (ACL110) - Clear Lens with Clear Temples

On May 01, 2015, COLTS Laboratories received Spectacles: Checklite from MCR Safety. From May 05, 2015 through May 14, 2015 COLTS Laboratories tested these Spectacles in accordance with ANSI Z87.1-2010.

**Final Conclusion:**

The Spectacles: Checklite (CL110 (ACL110) - Clear Lens with Clear Temples) do comply with ANSI Z87.1-2010 for the test(s) performed for ANSI Z87.1-2010 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

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Report To: MCR Safety  
 Project No: Z-MCR050115-01-01



Sample ID:  
 Checklite  
 CL110 (ACL110) - Clear Lens with Clear Temples

A2LA Accredited Certificate # 1612.01

Report Date: 5/15/2015

Lab Temp (C): 23

Lab Rh: 47

**Report of: ANSI Z87.1-2010 High Impact Spectacles - Base Model**

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Optical Quality	5.1.1	When tested in accordance with Section 9.1, protector lenses shall be free of: striae, bubbles, waves and other visible defects which would impair their optical quality.	Acceptable	Pass
Luminous Transmission	5.1.2	When tested in accordance with Section 9. 2, clear lenses shall have a luminous transmission of not less than 85%. Luminous Transmission	Acceptable	Pass
		Left Eye	93.15%	Pass
		Right Eye	90.98%	Pass
Haze	5.1.3	When tested in accordance with Section 9.3, clear plano lenses shall not exhibit more than 3% haze. Haze	Acceptable	Pass
		Left Eye	0.35%	Pass
		Right Eye	0.38%	Pass
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. Filter lenses of shade 9 or higher are exempt from this testing. When tested in accordance with Section 9.5, the tolerance on prism and prism imbalance shall be as indicated in Table 2.		
		Refractive Power ( $\pm 0.06$ )	Acceptable	Pass
		Left Eye	-0.05	Pass
		Right Eye	-0.03	Pass
		Astigmatism (0.06 Max)	Acceptable	Pass
		Left Eye	0.03	Pass
		Right Eye	0.03	Pass
		Resolving Power (20 Min)	Acceptable	Pass
		Left Eye	24	Pass
		Right Eye	20	Pass
		Complete Prism (0.50 Max)	Acceptable	Pass
		Left Eye	0.158	Pass
		Right Eye	0.158	Pass

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Report To: MCR Safety  
 Project No: Z-MCR050115-01-01



Sample ID:  
 Checklite  
 CL110 (ACL110) - Clear Lens with Clear Temples

A2LA Accredited Certificate # 1612.01

Report Date: 5/15/2015

Lab Temp (C): 23

Lab Rh: 47

**Report of: ANSI Z87.1-2010 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. Filter lenses of shade 9 or higher are exempt from this testing. When tested in accordance with Section 9.5, the tolerance on prism and prism imbalance shall be as indicated in Table 2.		
		Prismatic Imbalance	Acceptable	Pass
		Vertical (0.25 Max)	0.00	Pass
		Horizontal Base In/Out (In 0.25 Max; Out 0.50 Max)	0.00	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
Drop Ball Impact Resistance	5.2.1	When tested in accordance with Section 9.6, protector lenses shall not fracture when impacted by a 25.4 mm (1 in.) steel ball when dropped from a height of 127 cm (50 in.). Glass welding filter lenses shall be tested and used in conjunction with a safety plate in order to comply with the impact performance criteria.		
		Sample 1 - Left Eye	Acceptable	Pass
		Sample 2 - Left Eye	Acceptable	Pass
		Sample 3 - Right Eye	Acceptable	Pass
		Sample 4 - Right Eye	Acceptable	Pass
Ignition (Spectacle)	5.2.3	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	5.2.4	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. Lenses and electrical components are excluded from these requirements.		
		Corrosion Resistant	Acceptable	Pass

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Report To: MCR Safety  
 Project No: Z-MCR050115-01-01



Sample ID:  
 Checklite  
 CL110 (ACL110) - Clear Lens with Clear Temples

A2LA Accredited Certificate # 1612.01

Report Date: 5/15/2015

Lab Temp (C): 23

Lab Rh: 47

**Report of: ANSI Z87.1-2010 High Impact Spectacles - Base Model**

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Minimum Coverage Area	5.2.5	The eyewire and lens shall cover an area not less than 40 mm wide and 33 mm high (elliptical) in front of each eye.		
		Frames designed for small head sizes (marked H) shall cover an area of not less than 34 mm wide and 28 mm high (elliptical). Minimum Coverage Area	Acceptable	Pass
Minimum Lens Thickness	5.3	The minimum lens thickness for specified protectors shall be those indicated in Table 3. Note 1: No minimum thickness requirement applies to the protector beyond a vertical plane passing through the 90 degree impact point. Note 2: For plano spectacles, no minimum thickness is required for protectors if they meet the requirements of Section 9.11, High Mass Impact Test.		
		Minimum Thickness	N/A	N/A
Marking Requirements (Spectacles)	5.4	All protectors shall bear the permanent markings in specified locations as shown in Table 4a. Markings shall follow the sequence shown in Table 4b. 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.		
		Permanence of Markings	Acceptable	Pass
		Complete Device Markings	Acceptable	Pass
		Sequence Correct	Acceptable	Pass
		Mfg Mark or Logo	Acceptable	Pass
		Z87 Mark	Acceptable	Pass
		+ Mark	Acceptable	Pass
		H Mark (Coverage - small head sizes)	N/A	N/A
Lens Type (multiple claim sequence W,U,L,R,V,S)	Acceptable	Pass		
U6 claim was not verified				
Frames for Replaceable or Removable Lenses	5.5.4	All frames which can house replaceable or removable lenses shall be supplied with detailed specifications on the required lens bevel design or mounting technique and nominal lens sizing required to conform to ANSI/ISEA Z87.1-2010. Specifications supplied	N/A	N/A
Aftermarket Components	5.7	All original equipment manufacturers (OEM) and non-OEM aftermarket components not sold with the original device shall be tested. Aftermarket Components	Manufacturer requirement	Not testable

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Report To: MCR Safety  
 Project No: Z-MCR050115-01-01



Sample ID:  
 Checklite  
 CL110 (ACL110) - Clear Lens with Clear Temples

A2LA Accredited Certificate # 1612.01

Report Date: 5/15/2015

Lab Temp (C): 23

Lab Rh: 47

**Report of: ANSI Z87.1-2010 High Impact Spectacles - Base Model**

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Impact Rated Protectors	6.1.1	Impact-rated protectors and replaceable components shall meet the impact requirements in this standard and be marked in accordance with Table 4a and Table 4b.		
		Impact Requirements	Acceptable	Pass
		Marking Requirements	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 (0.394 in.) posterior to the corneal plane and not less than 10 mm (0.394 in.) in height (or 8 mm (0.315 in) for the smaller headform) above and not less than 10 mm (0.394 in.) in height (or 8 mm (0.315 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 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.).		
		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 be capable of resisting impact from a 6.35 mm (0.25 in) diameter steel ball traveling at 150 feet per second. No contact with the eye of the headform is permitted as a result of impact.		
		Left Eye Center	150 fps	Pass
		Left Eye 30°	150 fps	Pass
		Right Eye Center	152 fps	Pass
		Right Eye 30°	152 fps	Pass
		One Side 90° at 10mm Above (H - 8mm)	147 fps	Pass
		Opposite Side 90° at 10mm Below (H - 8mm)	151 fps	Pass

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Report To: MCR Safety  
Project No: Z-MCR050115-01-01



Sample ID:  
Checklite  
CL110 (ACL110) - Clear Lens with Clear Temples

A2LA Accredited Certificate # 1612.01

Report Date: 5/15/2015

Lab Temp (C): 23

Lab Rh: 47

## Report of: ANSI Z87.1-2010 High Impact Spectacles - Base Model

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Penetration Test (lenses only)	6.2.4	When tested in accordance with Section 9.13, lenses for all complete devices shall be capable of resisting penetration by a weighted needle with a total weight of 44.2 gm (1.56 oz.) dropped from a height of 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

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**Report  
Summary**

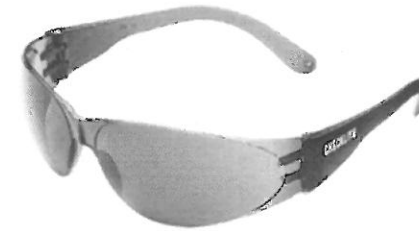
A2LA Accredited Certificate # 1612.01

**Report To:**

MCR Safety  
1255 Schilling Blvd West  
Collierville, TN 38017

**Project**

of Model(s): Checklite  
Report of: ANSI Z87.1-2010 High Impact Spectacles -  
Variant  
Project ID(s): Z-MCR050115-01-02



**Attn:** Glen Herald Jr

**Date:** May 14, 2015

**Product Description:** CL112 (ACL112) - Gray Lens with Gray Temples

On May 01, 2015, COLTS Laboratories received Spectacles: Checklite from MCR Safety. From May 05, 2015 through May 14, 2015 COLTS Laboratories tested these Spectacles in accordance with ANSI Z87.1-2010.

**Final Conclusion:**

The Spectacles: Checklite (CL112 (ACL112) - Gray Lens with Gray Temples) do comply with ANSI Z87.1-2010 for the test(s) performed for ANSI Z87.1-2010 High Impact Spectacles - Variant.

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

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Report To: MCR Safety  
 Project No: Z-MCR050115-01-02



Sample ID:  
 Checklite  
 CL112 (ACL112) - Gray Lens with Gray Temples

A2LA Accredited Certificate # 1612.01

Report Date: 5/15/2015

Lab Temp (C): 23

Lab Rh: 50

**Report of: ANSI Z87.1-2010 High Impact Spectacles - Variant**

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Optical Quality	5.1.1	When tested in accordance with Section 9.1, protector lenses shall be free of: striae, bubbles, waves and other visible defects which would impair their optical quality.	Acceptable	Pass
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. Filter lenses of shade 9 or higher are exempt from this testing. When tested in accordance with Section 9.5, the tolerance on prism and prism imbalance shall be as indicated in Table 2.		
		Refractive Power ( $\pm 0.06$ )	Acceptable	Pass
		Left Eye	-0.02	Pass
		Right Eye	-0.04	Pass
		Astigmatism (0.06 Max)	Acceptable	Pass
		Left Eye	0.03	Pass
		Right Eye	0.03	Pass
		Resolving Power (20 Min)	Acceptable	Pass
		Left Eye	20	Pass
		Right Eye	20	Pass
		Complete Prism (0.50 Max)	Acceptable	Pass
		Left Eye	0.050	Pass
		Right Eye	0.071	Pass
		Prismatic Imbalance	Acceptable	Pass
		Vertical (0.25 Max)	0.05	Pass
		Horizontal Base In/Out (In 0.25 Max; Out 0.50 Max)	0.10 in	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
Drop Ball Impact Resistance	5.2.1	When tested in accordance with Section 9.6, protector lenses shall not fracture when impacted by a 25.4 mm (1 in.) steel ball when dropped from a height of 127 cm (50 in.). Glass welding filter lenses shall be tested and used in conjunction with a safety plate in order to comply with the impact performance criteria.		
		Sample 1 - Left Eye	Acceptable	Pass

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Report To: MCR Safety  
 Project No: Z-MCR050115-01-02



Sample ID:  
 Checklite  
 CL112 (ACL112) - Gray Lens with Gray Temples

A2LA Accredited Certificate # 1612.01

Report Date: 5/15/2015

Lab Temp (C): 23

Lab Rh: 50

**Report of: ANSI Z87.1-2010 High Impact Spectacles - Variant**

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Drop Ball Impact Resistance	5.2.1	When tested in accordance with Section 9.6, protector lenses shall not fracture when impacted by a 25.4 mm (1 in.) steel ball when dropped from a height of 127 cm (50 in.). Glass welding filter lenses shall be tested and used in conjunction with a safety plate in order to comply with the impact performance criteria.		
		Sample 2 - Left Eye	Acceptable	Pass
		Sample 3 - Right Eye	Acceptable	Pass
		Sample 4 - Right Eye	Acceptable	Pass
Ignition (Spectacle)	5.2.3	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	5.2.4	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. Lenses and electrical components are excluded from these requirements.		
		Corrosion Resistant	Acceptable	Pass
Minimum Coverage Area	5.2.5	The eyewire and lens shall cover an area not less than 40 mm wide and 33 mm high (elliptical) in front of each eye.		
		Frames designed for small head sizes (marked H) shall cover an area of not less than 34 mm wide and 28 mm high (elliptical).		
		Minimum Coverage Area	Acceptable	Pass
Minimum Lens Thickness	5.3	The minimum lens thickness for specified protectors shall be those indicated in Table 3.		
		Note 1: No minimum thickness requirement applies to the protector beyond a vertical plane passing through the 90 degree impact point. Note 2: For plano spectacles, no minimum thickness is required for protectors if they meet the requirements of Section 9.11, High Mass Impact Test.		
		Minimum Thickness	N/A	N/A

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Report To: MCR Safety  
 Project No: Z-MCR050115-01-02



Sample ID:  
 Checklite  
 CL112 (ACL112) - Gray Lens with Gray Temples

A2LA Accredited Certificate # 1612.01

Report Date: 5/15/2015

Lab Temp (C): 23

Lab Rh: 50

## Report of: ANSI Z87.1-2010 High Impact Spectacles - Variant

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Marking Requirements (Spectacles)	5.4	All protectors shall bear the permanent markings in specified locations as shown in Table 4a. Markings shall follow the sequence shown in Table 4b. 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.		
		Permanence of Markings	Acceptable	Pass
		Complete Device Markings	Acceptable	Pass
		Sequence Correct	Acceptable	Pass
		Mfg Mark or Logo	Acceptable	Pass
		Z87 Mark	Acceptable	Pass
		+ Mark	Acceptable	Pass
		H Mark (Coverage - small head sizes)	N/A	N/A
Lens Type (multiple claim sequence W,U,L,R,V,S)	Acceptable	Pass		
			U6L3 claim was not verified	
Frames for Replaceable or Removable Lenses	5.5.4	All frames which can house replaceable or removable lenses shall be supplied with detailed specifications on the required lens bevel design or mounting technique and nominal lens sizing required to conform to ANSI/ISEA Z87.1-2010.		
		Specifications supplied	N/A	N/A
Aftermarket Components	5.7	All original equipment manufacturers (OEM) and non-OEM aftermarket components not sold with the original device shall be tested.		
		Aftermarket Components	Manufacturer requirement	Not testable
Impact Rated Protectors	6.1.1	Impact-rated protectors and replaceable components shall meet the impact requirements in this standard and be marked in accordance with Table 4a and Table 4b.		
		Impact Requirements	Acceptable	Pass
		Marking Requirements	Acceptable	Pass

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Sample ID:  
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 CL112 (ACL112) - Gray Lens with Gray Temples

A2LA Accredited Certificate # 1612.01

Report Date: 5/15/2015

Lab Temp (C): 23

Lab Rh: 50

## Report of: ANSI Z87.1-2010 High Impact Spectacles - Variant

Test/Property	Paragraph	Requirement	Test Results	Acceptance
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 (0.394 in.) posterior to the corneal plane and not less than 10 mm (0.394 in.) in height (or 8 mm (0.315 in) for the smaller headform) above and not less than 10 mm (0.394 in.) in height (or 8 mm (0.315 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 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.).		
		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 be capable of resisting impact from a 6.35 mm (0.25 in) diameter steel ball traveling at 150 feet per second. No contact with the eye of the headform is permitted as a result of impact.		
		Left Eye Center	151 fps	Pass
		Left Eye 30°	150 fps	Pass
		Right Eye Center	150 fps	Pass
		Right Eye 30°	152 fps	Pass
		One Side 90° at 10mm Above (H - 8mm)	147 fps	Pass
		Opposite Side 90° at 10mm Below (H - 8mm)	153 fps	Pass
Penetration Test (lenses only)	6.2.4	When tested in accordance with Section 9.13, lenses for all complete devices shall be capable of resisting penetration by a weighted needle with a total weight of 44.2 gm (1.56 oz.) dropped from a height of 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

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**APPENDIX 1**

**ANSI Z87.1 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
5.3	Minimum Lens Thickness	0.1 mm
5.5.3.1	Welding Protectors – Transmittance of Non-Lens Area	0.0000017%
5.6.1	Replaceable Lenses – Goggles	0.1 mm
5.6.2	Replaceable Lenses – Welding Helmets and Handshields	0.1 mm
7.1.2	Clear and Filter Lenses	
	Table 6 (Welding Filters)	See 7.1.3
	Table 7 EFUV	0.0000551%
	NUV	0.0000576%
	Table 8 (IR)	0.010395%
	Table 9 (VIS)	See 7.1.3
	W1.3 – W10	0.41%
	Table 10 Tinted Extra Dark	0.0001944%
7.1.3	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%
7.1.3.1	Switching Index	0.0192 mSec
7.1.4	Visible Light Filters	
	Visible Light	0.41%
	UVA	0.0000576%
	UVB	0.0000551%
7.2.1	Transmittance of Housings – Goggles	0.0000017%
7.2.2	Transmittance of Housings – Faceshields	0.0000017%