

TEST RESULTS and REPORT

for

LIBUS PPE

Windows with Ratchet Headgear

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-LIB031423-01

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

COLTS Laboratories

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PRODUCT RESULTS SUMMARY

A2LA Accredited Certificate # 1612.01

LIBUS PPE LIB031423-01

COLTS Project ID	Test/Models(s)	Results Pass / Fail	Reason	Page
Z-LIB031423-01-01	ANSI Z87.1-2020 Faceshield Base Model General Requirements Windows with Ratchet Headgear (BURBUJA - Clear polycarbonate window with Orange Crown and Black Ratchet Headgear (Z87+))	Pass		1
Z-LIB031423-01-02	ANSI Z87.1-2020 Faceshield Optional Claim (+) Windows with Ratchet Headgear (BURBUJA - Clear polycarbonate window with Orange Crown and Black Ratchet Headgear (Z87+))	Pass		5
Z-LIB031423-01-03	ANSI Z87.1-2020 Faceshield Variant General Requirements Windows with Ratchet Headgear (BURBUJA W3 - Polycarbonate Shade 3 Filter Window with Orange Crown and Black Ratchet Headgear (Z87+W3))	Pass		8
Z-LIB031423-01-04	ANSI Z87.1-2020 Faceshield Optional Claim (+,W) Windows with Ratchet Headgear (BURBUJA W3 - Polycarbonate Shade 3 Filter Window with Orange Crown and Black Ratchet Headgear (Z87+W3))	Pass		11
Z-LIB031423-01-05	ANSI Z87.1-2020 Faceshield Variant General Requirements Windows with Ratchet Headgear (PLANO - Clear PETG Window with Orange Crown and Black Ratchet Headgear (Z87))	Pass		16
Z-LIB031423-01-06	ANSI Z87.1-2020 Faceshield Wire Screen General Requirements Windows with Ratchet Headgear (FORESTAL "8 x 14" - Plastic Screen Window with Orange Crown and Black Ratchet Headgear (Z87))	Pass		20

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Report Summary

A2LA Accredited Certificate # 1612.01

Report To:

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

Project

of Model(s): Windows with Ratchet Headgear
Report of: ANSI Z87.1-2020
Project ID(s): Z-LIB031423-01-01



Attn: Miguel Caro

Date: April 27, 2023

Product Description: BURBUJA - Clear polycarbonate window with Orange Crown and Black Ratchet Headgear (Z87+)

On March 14, 2023, COLTS Laboratories received Faceshields: Windows with Ratchet Headgear from LIBUS PPE . From April 24, 2023 through April 26, 2023 COLTS Laboratories tested these Faceshields in accordance with ANSI Z87.1-2020 to the following test protocol: ANSI Z87.1-2020 Faceshield Base Model General Requirements.

Detailed test results are included.

Final Conclusion:

The Faceshields: Windows with Ratchet Headgear (BURBUJA - Clear polycarbonate window with Orange Crown and Black Ratchet Headgear (Z87+)) do comply with ANSI Z87.1-2020 for the test(s) included in this report.

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

Respectfully submitted,

COLTS Laboratories

Jacob Gary
Director of Operations

Dale Payne
Technical Services Manager

Report To: LIBUS PPE
 Project No: Z-LIB031423-01-01



Sample ID:
 Windows with Ratchet Headgear
 BURBUJA - Clear polycarbonate window with Orange Crown
 and Black Ratchet Headgear (Z87+)

A2LA Accredited Certificate # 1612.01

Report Date: 4/27/2023

Lab Temp (C): 22
 Lab Rh: 51

Report of: ANSI Z87.1-2020

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Optical Quality	5.1.1	Protector lenses shall be free of: striae, bubbles, waves and other visible defects which would impair the wearer's vision.	Acceptable	Pass
Luminous Transmittance	5.1.2	Clear lenses shall have a luminous transmittance of not less than 85%. Luminous Transmittance	Acceptable	Pass
		Left Eye	88.2%	Pass
		Right Eye	88.2%	Pass
Haze – Clear Lenses Only	5.1.3	Clear plano lenses shall not exhibit more than 3% haze. Haze	Acceptable	Pass
		Left Eye	0.29%	Pass
		Right Eye	0.37%	Pass
Faceshield - Resolving Power, Prism and Prism Imbalance for Plano Protectors	5.1.4	The tolerance on resolving power, prism and prism imbalance shall be as indicated below. Filter lenses of shade 9 or higher are exempt from this section. Resolving Power (Pattern 20)	Acceptable	Pass
		Left Eye	Acceptable	Pass
		Right Eye	Acceptable	Pass
		Complete Prism (0.37 Max)	Acceptable	Pass
		Left Eye	0.354	Pass
		Right Eye	0.255	Pass
		Prismatic Imbalance	Acceptable	Pass
		Vertical (0.37 Max)	0.10	Pass
		Horizontal Base In/Out (In 0.125 Max; Out 0.75 Max)	0.60 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 (Faceshield)	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 metals, textiles or elastic bands) shall be tested. Lens/Window	Acceptable	Pass
		Crown	Acceptable	Pass
		Headgear/Adapter	Acceptable	Pass

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Report To: LIBUS PPE
 Project No: Z-LIB031423-01-01



Sample ID:
 Windows with Ratchet Headgear
 BURBUJA - Clear polycarbonate window with Orange Crown
 and Black Ratchet Headgear (Z87+)

A2LA Accredited Certificate # 1612.01

Report Date: 4/27/2023

Lab Temp (C): 22
 Lab Rh: 51

Report of: ANSI Z87.1-2020

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Ignition (Faceshield)	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 metals, textiles or elastic bands) shall be tested. Other	N/A	N/A
Corrosion Resistance of Metal Components	5.2.3	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	N/A	N/A
Minimum Coverage Area	5.2.4	Protectors shall cover an area of not less than 40 mm in width and 33 mm in height (elliptical) in front of each eye, centered on the pupil centers of the test headform. Protectors designed for small head sizes shall cover an area of not less than 34 mm in width and 28 mm in height (elliptical), centered on the pupil centers of the test headform. Minimum Coverage Area	Acceptable	Pass
Placement of Markings (Faceshield)	5.3.2	All protectors shall bear the permanent and legible markings in specified locations. 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: Markings permanent, legible and in relatable proximity Markings representative of other standards shall not interfere with or be intermixed with the markings required by this standard. Complete Device Markings Manufacturer's Mark or Logo Z87 Mark + Mark Lens Type (multiple claim sequence W,U,L,R,V,S)	N/A N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A N/A
			Not assessed per customer request	

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Report To: LIBUS PPE
Project No: Z-LIB031423-01-01



Sample ID:
Windows with Ratchet Headgear
BURBUJA - Clear polycarbonate window with Orange Crown
and Black Ratchet Headgear (Z87+)

A2LA Accredited Certificate # 1612.01

Report Date: 4/27/2023

Lab Temp (C): 22

Lab Rh: 51

Report of: ANSI Z87.1-2020

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Aftermarket Components and Accessories	5.6	All original equipment manufacturers (OEM) and non-OEM aftermarket components or accessories not sold with the original device shall be tested. The entity claiming compliance of the component or accessory is responsible for testing the original complete device assembled with the components or accessories and shall provide evidence of compliance upon request. Aftermarket Components and Accessories	N/A	N/A

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Calle 21 Nro. 1213
Berazategui, Bs.As. Argentina

Project

of Model(s): Windows with Ratchet Headgear
Report of: ANSI Z87.1-2020
Project ID(s): Z-LIB031423-01-02



Attn: Miguel Caro

Date: April 27, 2023

Product Description: BURBUJA - Clear polycarbonate window with Orange Crown and Black Ratchet Headgear (Z87+)

On March 14, 2023, COLTS Laboratories received Faceshields: Windows with Ratchet Headgear from LIBUS PPE . From April 24, 2023 through April 26, 2023 COLTS Laboratories tested these Faceshields in accordance with ANSI Z87.1-2020 to the following test protocol: ANSI Z87.1-2020 Faceshield Optional Claim (+).

Detailed test results are included.

Final Conclusion:

The Faceshields: Windows with Ratchet Headgear (BURBUJA - Clear polycarbonate window with Orange Crown and Black Ratchet Headgear (Z87+)) do comply with ANSI Z87.1-2020 for the test(s) included in this report.

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

Respectfully submitted,

COLTS Laboratories

A handwritten signature in black ink, appearing to read 'Jacob Gary'.

Jacob Gary
Director of Operations

A handwritten signature in black ink, appearing to read 'Dale Payne'.

Dale Payne
Technical Services Manager

Report To: LIBUS PPE
 Project No: Z-LIB031423-01-02



Sample ID:
 Windows with Ratchet Headgear
 BURBUJA - Clear polycarbonate window with Orange Crown
 and Black Ratchet Headgear (Z87+)

A2LA Accredited Certificate # 1612.01

Report Date: 4/27/2023

Lab Temp (C): 22
 Lab Rh: 51

Report of: ANSI Z87.1-2020

Test/Property	Paragraph	Requirement	Test Results	Acceptance
High Velocity Impact (Faceshield)	7.1.4.3	The complete device shall meet the protector acceptance criteria when impacted by a 6.35 mm (0.25 in) diameter steel ball traveling at a minimum of 300 feet per second.		
		When tested in accordance with this section, the lens shall fail if any of the following occurs:		
		<ul style="list-style-type: none"> any part, fragment or material visible to the unaided eye becomes detached from the inner surface of any complete device, as determined by inspection of the device or of the contact paste; fracture; penetration of the inner surface either by the projectile passing completely through the lens, frame or housing component, or by rupture of the inner lens surface; lens not retained; the unaided eye observes any piece adhering to the contact paste, or observes contact paste on the projectile or complete device. 		
		Right Eye 30°	304 fps	Pass
		One Side 90° at 10mm Above (H - 8mm)	312 fps	Pass
		Opposite Side 90° at 10mm Below (H - 8mm)	308 fps	Pass
Penetration Test (lenses only)	7.1.4.4	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

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Report Summary

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Project

of Model(s): Windows with Ratchet Headgear
Report of: ANSI Z87.1-2020
Project ID(s): Z-LIB031423-01-03



Attn: Miguel Caro

Date: April 27, 2023

Product Description: BURBUJA W3 - Polycarbonate Shade 3 Filter Window with Orange Crown and Black Ratchet Headgear (Z87+W3)

On March 14, 2023, COLTS Laboratories received Faceshields: Windows with Ratchet Headgear from LIBUS PPE . From April 24, 2023 through April 26, 2023 COLTS Laboratories tested these Faceshields in accordance with ANSI Z87.1-2020 to the following test protocol: ANSI Z87.1-2020 Faceshield Variant General Requirements.

Detailed test results are included.

Final Conclusion:

The Faceshields: Windows with Ratchet Headgear (BURBUJA W3 - Polycarbonate Shade 3 Filter Window with Orange Crown and Black Ratchet Headgear (Z87+W3)) do comply with ANSI Z87.1-2020 for the test(s) included in this report.

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

Respectfully submitted,

COLTS Laboratories

Jacob Gary
Director of Operations

Dale Payne
Technical Services Manager

Report To: LIBUS PPE
 Project No: Z-LIB031423-01-03



Sample ID:
 Windows with Ratchet Headgear
 BURBUJA W3 - Polycarbonate Shade 3 Filter Window with
 Orange Crown and Black Ratchet Headgear (Z87+W3)

A2LA Accredited Certificate # 1612.01

Report Date: 4/27/2023

Lab Temp (C): 22

Lab Rh: 51

Report of: ANSI Z87.1-2020

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Optical Quality	5.1.1	Protector lenses shall be free of: striae, bubbles, waves and other visible defects which would impair the wearer's vision.	Acceptable	Pass
Faceshield - Resolving Power, Prism and Prism Imbalance for Plano Protectors	5.1.4	The tolerance on resolving power, prism and prism imbalance shall be as indicated below. Filter lenses of shade 9 or higher are exempt from this section. Resolving Power (Pattern 20) Left Eye Right Eye Complete Prism (0.37 Max) Left Eye Right Eye Prismatic Imbalance Vertical (0.37 Max) Horizontal Base In/Out (In 0.125 Max; Out 0.75 Max)	Acceptable Acceptable Acceptable Acceptable 0.304 0.304 Acceptable 0.10 0.60 out	Pass Pass Pass Pass Pass Pass Pass Pass 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 (Faceshield)	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 metals, textiles or elastic bands) shall be tested. Lens/Window Crown Headgear/Adapter Other	Acceptable Acceptable Acceptable N/A	Pass Pass Pass N/A
Corrosion Resistance of Metal Components	5.2.3	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	N/A	N/A

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Report To: LIBUS PPE
 Project No: Z-LIB031423-01-03



Sample ID:
 Windows with Ratchet Headgear
 BURBUJA W3 - Polycarbonate Shade 3 Filter Window with
 Orange Crown and Black Ratchet Headgear (Z87+W3)

A2LA Accredited Certificate # 1612.01

Report Date: 4/27/2023

Lab Temp (C): 22
 Lab Rh: 51

Report of: ANSI Z87.1-2020

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Minimum Coverage Area	5.2.4	Protectors shall cover an area of not less than 40 mm in width and 33 mm in height (elliptical) in front of each eye, centered on the pupil centers of the test headform.		
		Protectors designed for small head sizes shall cover an area of not less than 34 mm in width and 28 mm in height (elliptical), centered on the pupil centers of the test headform. Minimum Coverage Area	Acceptable	Pass
Placement of Markings (Faceshield)	5.3.2	All protectors shall bear the permanent and legible markings in specified locations. 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:		
		Markings permanent, legible and in relatable proximity	N/A	N/A
		Markings representative of other standards shall not interfere with or be intermixed with the markings required by this standard.	N/A	N/A
		Complete Device Markings	N/A	N/A
		Manufacturer's Mark or Logo	N/A	N/A
		Z87 Mark	N/A	N/A
		+ Mark	N/A	N/A
Lens Type (multiple claim sequence W,U,L,R,V,S)	N/A	N/A		
			Not assessed per customer request	
Aftermarket Components and Accessories	5.6	All original equipment manufacturers (OEM) and non-OEM aftermarket components or accessories not sold with the original device shall be tested. The entity claiming compliance of the component or accessory is responsible for testing the original complete device assembled with the components or accessories and shall provide evidence of compliance upon request. Aftermarket Components and Accessories	N/A	N/A

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Project

of Model(s): Windows with Ratchet Headgear
Report of: ANSI Z87.1-2020
Project ID(s): Z-LIB031423-01-04



Attn: Miguel Caro

Date: April 27, 2023

Product Description: BURBUJA W3 - Polycarbonate Shade 3 Filter Window with Orange Crown and Black Ratchet Headgear (Z87+W3)

On March 14, 2023, COLTS Laboratories received Faceshields: Windows with Ratchet Headgear from LIBUS PPE . From April 24, 2023 through April 26, 2023 COLTS Laboratories tested these Faceshields in accordance with ANSI Z87.1-2020 to the following test protocol: ANSI Z87.1-2020 Faceshield Optional Claim (+,W).

Detailed test results are included.

Final Conclusion:

The Faceshields: Windows with Ratchet Headgear (BURBUJA W3 - Polycarbonate Shade 3 Filter Window with Orange Crown and Black Ratchet Headgear (Z87+W3)) do comply with ANSI Z87.1-2020 for the test(s) included in this report.

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

Respectfully submitted,

COLTS Laboratories

Jacob Gary
Director of Operations

Dale Payne
Technical Services Manager

Report To: LIBUS PPE
 Project No: Z-LIB031423-01-04



Sample ID:
 Windows with Ratchet Headgear
 BURBUJA W3 - Polycarbonate Shade 3 Filter Window with
 Orange Crown and Black Ratchet Headgear (Z87+W3)

A2LA Accredited Certificate # 1612.01

Report Date: 4/27/2023

Lab Temp (C): 22

Lab Rh: 51

Report of: ANSI Z87.1-2020

Test/Property	Paragraph	Requirement	Test Results	Acceptance
High Velocity Impact (Faceshield)	7.1.4.3	The complete device shall meet the protector acceptance criteria when impacted by a 6.35 mm (0.25 in) diameter steel ball traveling at a minimum of 300 feet per second.		
		When tested in accordance with this section, the lens shall fail if any of the following occurs:		
		<ul style="list-style-type: none"> any part, fragment or material visible to the unaided eye becomes detached from the inner surface of any complete device, as determined by inspection of the device or of the contact paste; fracture; penetration of the inner surface either by the projectile passing completely through the lens, frame or housing component, or by rupture of the inner lens surface; lens not retained; the unaided eye observes any piece adhering to the contact paste, or observes contact paste on the projectile or complete device. 		
		Right Eye 30°	310 fps	Pass
		One Side 90° at 10mm Above (H - 8mm)	303 fps	Pass
		Opposite Side 90° at 10mm Below (H - 8mm)	305 fps	Pass
Penetration Test (lenses only)	7.1.4.4	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

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Sample ID:
 Windows with Ratchet Headgear
 BURBUJA W3 - Polycarbonate Shade 3 Filter Window with
 Orange Crown and Black Ratchet Headgear (Z87+W3)

A2LA Accredited Certificate # 1612.01

Report Date: 4/27/2023

Lab Temp (C): 22
 Lab Rh: 51

Report of: ANSI Z87.1-2020

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Welding Filter Lenses - Transmission Requirements	7.2.2.1.1	Welding filters shall comply with requirements of Table 7. Welding filters shall be tested directly in front of each eye and at the thinnest edge of the lens no closer than 5 mm (0.20 in.) from the lens edge. Edge measurements are allowed ± 1 shade number.		
		U.V. Near	Acceptable	Pass
		Left Eye	0.000055%	Pass
		Left Eye Edge	0.000056%	Pass
		Right Eye	0.000055%	Pass
		Right Eye Edge	0.000054%	Pass
		U.V. Far	Acceptable	Pass
		Left Eye	0.000034%	Pass
		Left Eye Edge	0.000027%	Pass
		Right Eye	0.000030%	Pass
		Right Eye Edge	0.000036%	Pass
		Luminous	Acceptable	Pass
		Left Eye	12.261633%	Pass
		Left Eye Edge	11.806484%	Pass
		Right Eye	12.689119%	Pass
		Right Eye Edge	12.550203%	Pass
		Blue-light	Acceptable	Pass
		Left Eye	0.565681%	Pass
		Left Eye Edge	0.535575%	Pass
		Right Eye	0.591419%	Pass
		Right Eye Edge	0.586279%	Pass
		Infrared	Acceptable	Pass
		Left Eye	8.022621%	Pass
		Left Eye Edge	7.710099%	Pass
		Right Eye	8.751357%	Pass
		Right Eye Edge	8.552169%	Pass

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Sample ID:
Windows with Ratchet Headgear
BURBUJA W3 - Polycarbonate Shade 3 Filter Window with
Orange Crown and Black Ratchet Headgear (Z87+W3)

A2LA Accredited Certificate # 1612.01

Report Date: 4/27/2023

Lab Temp (C): 22

Lab Rh: 51

Report of: ANSI Z87.1-2020

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Variations in Luminous Transmittance	7.2.2.1.3	<p>For shades, 1.3 through 3.0, the ratio of the two measured transmittances, one for each lens of a removable pair, or at points directly in front of each eye for a non-removable lens, shall not be less than 0.90, nor more than 1.11.</p> <p>For shades 4.0 through 14 inclusive, the ratio of the two measured transmittances shall be not less than 0.80 nor more than 1.25. Variation in transmission shall be measured in the darkest state.</p> <p>Ratio - Shades 4 - 14; 0.80 - 1.25</p>	0.966	Pass

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Project

of Model(s): Windows with Ratchet Headgear
Report of: ANSI Z87.1-2020
Project ID(s): Z-LIB031423-01-05



Attn: Miguel Caro

Date: April 27, 2023

Product Description: PLANO - Clear PETG Window with Orange Crown and Black Ratchet Headgear (Z87)

On March 14, 2023, COLTS Laboratories received Faceshields: Windows with Ratchet Headgear from LIBUS PPE . From April 24, 2023 through April 26, 2023 COLTS Laboratories tested these Faceshields in accordance with ANSI Z87.1-2020 to the following test protocol: ANSI Z87.1-2020 Faceshield Variant General Requirements.

Detailed test results are included.

Final Conclusion:

The Faceshields: Windows with Ratchet Headgear (PLANO - Clear PETG Window with Orange Crown and Black Ratchet Headgear (Z87)) do comply with ANSI Z87.1-2020 for the test(s) included in this report.

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

Respectfully submitted,

COLTS Laboratories

Jacob Gary
Director of Operations

Dale Payne
Technical Services Manager

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Sample ID:
 Windows with Ratchet Headgear
 PLANO - Clear PETG Window with Orange Crown and Black
 Ratchet Headgear (Z87)

A2LA Accredited Certificate # 1612.01

Report Date: 4/27/2023

Lab Temp (C): 22
 Lab Rh: 51

Report of: ANSI Z87.1-2020

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Optical Quality	5.1.1	Protector lenses shall be free of: striae, bubbles, waves and other visible defects which would impair the wearer's vision.	Acceptable	Pass
Luminous Transmittance	5.1.2	Clear lenses shall have a luminous transmittance of not less than 85%. Luminous Transmittance	Acceptable	Pass
		Left Eye	88.9%	Pass
		Right Eye	88.9%	Pass
Haze – Clear Lenses Only	5.1.3	Clear plano lenses shall not exhibit more than 3% haze. Haze	Acceptable	Pass
		Left Eye	0.49%	Pass
		Right Eye	0.62%	Pass
Faceshield - Resolving Power, Prism and Prism Imbalance for Plano Protectors	5.1.4	The tolerance on resolving power, prism and prism imbalance shall be as indicated below. Filter lenses of shade 9 or higher are exempt from this section. Resolving Power (Pattern 20)	Acceptable	Pass
		Left Eye	Acceptable	Pass
		Right Eye	Acceptable	Pass
		Complete Prism (0.37 Max)	Acceptable	Pass
		Left Eye	0.158	Pass
		Right Eye	0.071	Pass
		Prismatic Imbalance	Acceptable	Pass
		Vertical (0.37 Max)	0.00	Pass
		Horizontal Base In/Out (In 0.125 Max; Out 0.75 Max)	0.20 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

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Report To: LIBUS PPE
 Project No: Z-LIB031423-01-05



Sample ID:
 Windows with Ratchet Headgear
 PLANO - Clear PETG Window with Orange Crown and Black
 Ratchet Headgear (Z87)

A2LA Accredited Certificate # 1612.01

Report Date: 4/27/2023

Lab Temp (C): 22
 Lab Rh: 51

Report of: ANSI Z87.1-2020

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Drop Ball Impact Resistance	5.2.1	The protector shall fail if any of the following occur when impacted by a 25.4 mm (1 in.) diameter steel ball when dropped from a height of 127 cm (50 in.):		
		<ul style="list-style-type: none"> • lens (lens only) fractures • piece fully detached from the inner surface • projectile penetrates the inner surface • lens not retained 		
		Glass welding filter lenses shall be tested and used in conjunction with a safety plate in order to comply with the drop ball impact performance criteria.		
		Protectors first tested to and meeting the requirements of Section 7.1.4 are exempt from drop ball impact testing.		
		Sample 1 - Left Eye Sample 2 - Left Eye Sample 3 - Right Eye Sample 4 - Right Eye	Acceptable Acceptable Acceptable Acceptable	Pass Pass Pass Pass
Ignition (Faceshield)	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 metals, textiles or elastic bands) shall be tested.		
		Lens/Window	Acceptable	Pass
		Crown	Acceptable	Pass
		Headgear/Adapter	Acceptable	Pass
		Other	N/A	N/A
Corrosion Resistance of Metal Components	5.2.3	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	N/A	N/A
Minimum Coverage Area	5.2.4	Protectors shall cover an area of not less than 40 mm in width and 33 mm in height (elliptical) in front of each eye, centered on the pupil centers of the test headform.		
		Protectors designed for small head sizes shall cover an area of not less than 34 mm in width and 28 mm in height (elliptical), centered on the pupil centers of the test headform. Minimum Coverage Area	Acceptable	Pass

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Sample ID:
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 PLANO - Clear PETG Window with Orange Crown and Black
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A2LA Accredited Certificate # 1612.01

Report Date: 4/27/2023

Lab Temp (C): 22
 Lab Rh: 51

Report of: ANSI Z87.1-2020

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Placement of Markings (Faceshield)	5.3.2	All protectors shall bear the permanent and legible markings in specified locations.		
		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:		
		Markings permanent, legible and in relatable proximity	N/A	N/A
		Markings representative of other standards shall not interfere with or be intermixed with the markings required by this standard.	N/A	N/A
		Complete Device Markings	N/A	N/A
		Manufacturer's Mark or Logo	N/A	N/A
		Z87 Mark	N/A	N/A
		Lens Type (multiple claim sequence W,U,L,R,V,S)	N/A	N/A
Not assessed per customer request				
Aftermarket Components and Accessories	5.6	All original equipment manufacturers (OEM) and non-OEM aftermarket components or accessories not sold with the original device shall be tested.		
		The entity claiming compliance of the component or accessory is responsible for testing the original complete device assembled with the components or accessories and shall provide evidence of compliance upon request.		
		Aftermarket Components and Accessories	N/A	N/A

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Report Summary

A2LA Accredited Certificate # 1612.01

Report To:

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

Attn: Miguel Caro

Date: April 27, 2023

Project

of Model(s): Windows with Ratchet Headgear
Report of: ANSI Z87.1-2020
Project ID(s): Z-LIB031423-01-06



Product Description: FORESTAL "8 x 14" - Plastic Screen Window with Orange Crown and Black Ratchet Headgear (Z87)

On March 14, 2023, COLTS Laboratories received Faceshields: Windows with Ratchet Headgear from LIBUS PPE . From April 24, 2023 through April 26, 2023 COLTS Laboratories tested these Faceshields in accordance with ANSI Z87.1-2020 to the following test protocol: ANSI Z87.1-2020 Faceshield Wire Screen General Requirements.

Detailed test results are included.

Final Conclusion:

The Faceshields: Windows with Ratchet Headgear (FORESTAL "8 x 14" - Plastic Screen Window with Orange Crown and Black Ratchet Headgear (Z87)) do comply with ANSI Z87.1-2020 for the test(s) included in this report.

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

Respectfully submitted,

COLTS Laboratories

Jacob Gary
Director of Operations

Dale Payne
Technical Services Manager

Report To: LIBUS PPE
 Project No: Z-LIB031423-01-06



Sample ID:
 Windows with Ratchet Headgear
 FORESTAL "8 x 14" - Plastic Screen Window with Orange
 Crown and Black Ratchet Headgear (Z87)

A2LA Accredited Certificate # 1612.01

Report Date: 4/27/2023

Lab Temp (C): 22
 Lab Rh: 51

Report of: ANSI Z87.1-2020

Test/Property	Paragraph	Requirement	Test Results	Acceptance
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	The protector shall fail if any of the following occur when impacted by a 25.4 mm (1 in.) diameter steel ball when dropped from a height of 127 cm (50 in.): <ul style="list-style-type: none"> • lens (lens only) fractures • piece fully detached from the inner surface • projectile penetrates the inner surface • lens not retained <p>Glass welding filter lenses shall be tested and used in conjunction with a safety plate in order to comply with the drop ball impact performance criteria.</p> <p>Protectors first tested to and meeting the requirements of Section 7.1.4 are exempt from drop ball impact testing.</p> <p>Sample 1 - Left Eye</p> <p>Sample 2 - Left Eye</p> <p>Sample 3 - Right Eye</p> <p>Sample 4 - Right Eye</p>	Acceptable	Pass
Ignition (Faceshield)	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 metals, textiles or elastic bands) shall be tested. <p>Lens/Window</p> <p>Crown</p> <p>Headgear/Adapter</p> <p>Other</p>	Acceptable	Pass
Corrosion Resistance of Metal Components	5.2.3	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. <p>Corrosion Resistant</p>	N/A	N/A

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Report To: LIBUS PPE
 Project No: Z-LIB031423-01-06



Sample ID:
 Windows with Ratchet Headgear
 FORESTAL "8 x 14" - Plastic Screen Window with Orange
 Crown and Black Ratchet Headgear (Z87)

A2LA Accredited Certificate # 1612.01

Report Date: 4/27/2023

Lab Temp (C): 22
 Lab Rh: 51

Report of: ANSI Z87.1-2020

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Minimum Coverage Area	5.2.4	Protectors shall cover an area of not less than 40 mm in width and 33 mm in height (elliptical) in front of each eye, centered on the pupil centers of the test headform.		
		Protectors designed for small head sizes shall cover an area of not less than 34 mm in width and 28 mm in height (elliptical), centered on the pupil centers of the test headform. Minimum Coverage Area	Acceptable	Pass
Placement of Markings (Faceshield)	5.3.2	All protectors shall bear the permanent and legible markings in specified locations. 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:		
		Markings permanent, legible and in relatable proximity	N/A	N/A
		Markings representative of other standards shall not interfere with or be intermixed with the markings required by this standard.	N/A	N/A
		Complete Device Markings	N/A	N/A
		Manufacturer's Mark or Logo Z87 Mark	N/A N/A	N/A N/A
			Not assessed per customer request	
Screen Windows and Screen Lenses	5.4.2	Exposed borders of screen windows and cutouts in the screen window (combination plastic and screen) shall be finished in such a manner as to eliminate any sharp, rough or unfinished edges. Screen windows and lenses are exempt from penetration and optical requirements. Finish	Acceptable	Pass
Aftermarket Components and Accessories	5.6	All original equipment manufacturers (OEM) and non-OEM aftermarket components or accessories not sold with the original device shall be tested. The entity claiming compliance of the component or accessory is responsible for testing the original complete device assembled with the components or accessories and shall provide evidence of compliance upon request.		
		Aftermarket Components and Accessories	N/A	N/A

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APPENDIX 1

ANSI Z87.1 - 2020 Measurement Uncertainty Values

Section	Requirement	Uncertainty
5.1.2	Luminous Transmittance	0.19%
5.1.3	Haze	0.08%
5.1.4	Refractive Power	0.018D
	Astigmatism	0.018D
	Prism	0.048Δ
5.4.5	Minimum Lens Thickness	0.012 mm
5.5.1	Replaceable Lenses – Goggles	0.17 mm
5.5.2	Replaceable Lenses – Welding Helmets and Handshields	0.17 mm
6.1	Relaxed Optics Level	See 5.1.4
6.2	Anti-Fog Properties	1.79%
7.2.1	Optical Radiation - Clear Lenses	See 5.1.2
7.2.2.1.1	Transmission Requirements	
	Table 7 (Welding Filters)	
	W1.3 – W3.0	See 5.1.2
	W4	0.0018287%
	W5	0.0003283%
	W6	0.0003605%
	W7	0.0000961%
	W8	0.0001944%
	W9	0.0000459%
	W10	0.0000707%
	W11	0.0000163%
	W12	0.0000055%
	W13	0.0000029%
	W14	0.0000017%
	EFUV	0.0000551%
	NUV	0.0000576%
	IR	0.010395%
	Table 8 (UV Filters)	
	EFUV	0.0000551%
	NUV	0.0000576%
	Table 9 (IR Filters)	0.010395%
	Table 10 (VIS Filters)	See 7.2.2.1.1 W1.3 – W10
	Table 11 Tinted	See 5.1.2
	Extra Dark	See 5.1.2
7.2.2.1.2	Visible Light Filters	
	Visible Light (L1.3 - L3)	See 5.1.2
	UVA	See Table 7 NUV
	UVB	See Table 7 EFUV
7.2.2.2	Transmittance of Non-lens Components	See 7.2.2.1.1 Table 7, 8 & 9
7.2.3.1	Automatic Darkening Welding Filter Lenses - Luminous Transmittance	See 7.2.2.1.1 Table 7
7.2.3.2	Automatic Darkening Welding Filter Lenses - UV/IR Transmittance	See 7.2.2.1.1 Table 7
7.2.3.3	Switching Index	0.0192 mSec
7.2.3.5	Angular dependence of luminous transmittance	See 7.2.2.1.1 Table 7