



TEST REPORT

Applicant: Guilin Refine Medical Instrument Co., LTD
Address: NO.8-3, Information Industrial Park, High-Tech Zone, Qixing District, Guilin, Guangxi, 541004, P.R.China
Report No: C80602017
Date: June 8, 2020

Attn: Chen Ju Dong
Sample Description : Safety Goggles
Submitted sample(s) said to be : 21 pieces
Item No. : EP05
Device Type: Safety Goggles
Material : PVC + PC
Frame Color : Transparent polycarbonate (PC)
Lens Color : Transparent
Lenses Type : Not Provided
P.O. No. : Not Provided
Age Grade : Not Provided
Supplier : Guilin Refine Medical Instrument Co., LTD
Buyer : Not Provided
Goods exported to : Not Provided
Country of origin : Not Provided
Date(s) of samples received : June 1, 2020
Date of Test Period : June 1, 2020 - June 8, 2020

REMARK

The Personal eye - protection test was performed at an UL approved subcontract lab.
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Subcontract Report No.: PL 2006051

Notes: The results relate only to the items tested.

For and on behalf of :

UL VS Shanghai Limited Shenzhen Branch

Hedy Li



Hedy Li
Consumer Engineering Manager
Eyewear Testing Department

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SZ-FAF-001 (2017-10-12)



Test Report

Report No.: PL2006051

Page 1 of 12

Applicant: Guilin Refine Medical Instrument Co., LTD.

Address of Applicant: NO. 8-3, Information Industrial Park, High-Tech Zone, Qixing District,
Guilin, Guangxi, 541004, P.R. China

Description of Samples

The submitted sample and sample information was/were submitted and identified by/on behalf of client.

Sample Name: Safety Goggle
Device Type: ☐ Spectacles ☒ Goggles ☐ Face Shields
Model No.: EP05
Quantity: 21 pairs
Material: PVC+PC
Scale No.: Not provided
Lenses Color: Transparent
Frames Color: Transparent polycarbonate (PC)
P.O. No.: Not provided
Supplier / Brand: Not provided
Buyer: Not provided
Goods exported to: Not provided
Country of Origin: Not provided
Date of Receiving Samples: June 3, 2020
Testing Period: June 3, 2020 to June 6, 2020

Tests Conducted: As requested by the applicant, refer to attached page(s) for details.

Issued by stamp

Date of Issued: June 06, 2020

For and on behalf of:

Shenzhen Precision Eyewear
Testing & Inspection Services Co., Ltd.

Manager: WenHua Li

Test Report

Report No.: PL2006051

Page 2 of 12

Sample Photo:



Conclusion:

Tested Samples	Required Standard(s)	Results
Submitted Samples	EN 166: 2001 Personal eye - protection – Specifications, only test the related parameters, please refer to “Tests Conducted Summary” for details.	☒ Pass ☐ Fail

Test Report

Report No.: PL2006051

Page 3 of 12

Tests Conducted Summary

1. Test standards

EN 166: 2001 Personal eye - protection – Specifications

EN 167: 2001 Personal eye - protection – Optical test methods

EN 168: 2001 Personal eye - protection - Non-optical test methods

Note: The applicant's attention was drawn that the manufacturer should not use the frame materials which are known to cause irritation, allergic or toxic reaction during wear in a normal state of health against significant proportion of users.

Requirement			Testing		Results ¹		
Test Items		According to		According to			
		EN	Clause	EN		Clause	
General construction			166	6.1	--	--	P
Materials (Nickel release)			166	6.2	--	--	NA
Headbands			166	6.3	--	--	P
Field of vision			166	7.1.1	168	18	P
Refractive powers (Unmounted oculars covering one eye)	Spherical refractive powers	166	7.1.2.1.1	167	3.1	NA	
	Astigmatic refractive powers						
	Prismatic refractive powers						
Refractive powers (Mounted oculars and covering both eyes)	Spherical refractive powers	166	7.1.2.1.2	167	3.2	Optical Class 1	
	Astigmatic refractive powers						
	Prismatic refractive powers						
Transmittance	Oculars without filtering action	166	7.1.2.2.1	167	6	P	
	Oculars with filtering action	166	7.1.2.2.2	167	6	NA	
	Ultraviolet Filter	170	4	167	6	NA	
	Sunglare Filter for Industrial Use	172	4.1	167	6	NA	
Variations in transmittance (Exempt oculars without filtering action)	Oculars without corrective effect	166	7.1.2.2.3.1	167	7	NA	
	Oculars with corrective effect	166	7.1.2.2.3.2	167	7	NA	

Test Report

Report No.: PL2006051

Page 4 of 12

Tests Conducted Summary

Requirement			Testing		Results		
Test Items		According to Clause		According to			
		EN	Clause	EN		Clause	
Diffusion of light			166	7.1.2.3	167	4	P
Quality of material and surface			166	7.1.3	167	5	P
Minimum robustness ²			166	7.1.4.1	168	4	NA
Increased	Unmounted oculars		166	7.1.4.2.1	168	3.1	NA
robustness	Complete eye-protectors and frame		166	7.1.4.2.2	168	3.2	P
Stability at an elevated temperature			166	7.1.5.1	168	5	P
Resistance to ultraviolet radiation (oculars only)			166	7.1.5.2	168	6	P
Resistance to corrosion (All metal parts only)			166	7.1.6	168	8	NA
Resistance to ignition			166	7.1.7	168	7	P
Protection against high-speed particles			166	7.2.2	168	9	P
Protection against		For Goggles	166	7.2.4	168	12	P
chemical droplets of liquids		For face-shields			168	10.2, 12	NA
Lateral protection			166	7.2.8	168	19	P
Resistance to fogging of oculars			166	7.3.2	168	16	P
Information supplied by the manufacturer			166	10	--	--	P

Remarks: 1. P = Pass; F = Fail; NA = Not Applicable; NR= Not require; X=Checked.

2. This requirement relates only to cover plates and oculars with filtering effect and not be assessed if these items are intended to meet the requirements for increased robustness or resistance to high speed particles, in which case the requirements of 7.1.4.2 or 7.2.2 shall be met.

Test Report

Report No.: PL2006051

Page 5 of 12

Test Result

General construction — Clause 6.1/ Headbands — Clause 6.3

Sample No.	General construction		Headbands			Comment	Result(s)
	Defects		Width	Adjustable			
	Observed	Absent		Yes	No		
2006051-(01~03)		X	15.0	X		--	P

Requirements:

1. General construction: Eye-Protectors shall be free of projections, sharp edges or other defects which are likely to cause discomfort or injury during use.

2. Headbands: shall be at least 10mm wide over any portion which may come into contact with the wearer's head ,and shall be adjustable or self-adjusting;

Field of vision — Clause 7.1.1 / EN 168:2001 Clause 18

Sample No.	Head-form		Exhibit minimum field of vision defined in the standard		Comment	Result(s)
	Medium	Small	Yes	No		
2006051-(01~03)	X		X		--	P
Requirements:						
Eye-Protectors shall be exhibit field of vision an area of not less than 22 mm in the horizontal length and 20mm in the vertical width in front of each eye.						

Refractive powers— Clause 7.1.2.1 .2 / EN 167:2001 Clause 3.2

Sample No.	Refractive powers				Difference in prismatic refractive powers (cm/m)			Result(s)
	Spherical (m ⁻¹)		Astigmatic (m ⁻¹)		Horizontal		Vertical	
	Left	Right	Left	Right	Base Out	Base In		
2006051-01	+0.02	0.00	0.00	0.00	--	0.01	0.00	Optical class 1
2006051-02	+0.02	0.00	0.00	0.00	--	0.01	0.00	
2006051-03	+0.02	0.00	0.00	0.00	--	0.01	0.00	
Requirement: Permissible tolerances for refractive powers :								
Optical class 1	±0.06		0.06		0.75	0.25	0.25	
Optical class 2	±0.12		0.12		1.00	0.25	0.25	
Optical class 3	+0.12~ -0.25		0.25		1.00	0.25	0.25	

Measurement Uncertainty (if necessary):

Test Report

Report No.: PL2006051

Page 6 of 12

Test Result

Transmittance (without filtering action) — Clause 7.1.2.2/ EN 167:2001 Clause 6

Sample No.	Requirements	Luminous Transmittance, T_v (%)		Result(s)
		Left	Right	
2006051-01	$T_v > 74.4\%$	91.5	91.2	P
2006051-02		91.0	90.8	P
2006051-03		91.0	91.3	P

Measurement Uncertainty (if necessary):

Diffusion of light — Clause 7.1.2.3 / EN 167:2001 Clause 4

Sample No.	Samples type	Diffusion of light (cd/m^2) / lx		Result(s)
		Left	Right	
2006051-01	III	0.21	0.28	P
2006051-02		0.34	0.32	P
2006051-03		0.17	0.29	P

Requirements:

The maximum value of the reduced luminance factor shall be :

I 1.00(cd/m^2) / lx for welding filter;

II 0.75(cd/m^2) / lx for oculars used in eye-protectors against high speed particles;

III 0.50 (cd/m^2) / lx for all other oculars;

Measurement Uncertainty (if necessary):

Test Report

Report No.: PL2006051

Page 7 of 12

Test Result

Quality of material and surface — Clause 7.1.3 / EN 167:2001 Clause 5

Sample No.	Defects		Comment	Result(s)
	Observed	Absent		
2006051-(01~03)		X	--	P
Requirements: Except in a marginal area 5 mm wide, oculars shall be free from any significant defects likely to impair vision in use, such as bubbles, scratches, inclusions, dull spots, pitting, mould marks, scouring, grains, pocking, scaling and undulation.				

Increased robustness — Clause 7.1.4.2 / EN 168:2001 Clause 3.2

Sample No.	Test temperature (°C)	Test position	Defects		Comment	Result(s)
			Observed	Absent		
2006051-(04~05)	55	Left Frontal		X	--	P
2006051-06		Left Lateral		X		P
2006051-(07~08)	-5	Left Frontal		X		P
2006051-09		Left Lateral		X		P
2006051-(04~05)	55	Right Frontal		X		P
2006051-06		Right Lateral		X		P
2006051-(07~08)	-5	Right Frontal		X		P
2006051-09		Right Lateral		X		P
Requirements:						
The following defects shall not occur:						
1. Ocular fracture:						
2. Ocular deformation:						

Stability at an elevated temperature — Clause 7.1.5.1 / EN 168:2001 Clause 5

Sample No.	Apparent deformation		Comment	Result(s)
	Observed	Absent		
2006051-(04~06)		X	--	P
Requirements: Assembled eye-protectors shall show no apparent deformation;				

Test Report

Report No.: PL2006051

Page 8 of 12

Test Results

Resistance to ultraviolet radiation (oculars only) — Clause 7.1.5.2 / EN 168:2001 Clause 6

Samples type		Sample No.					
Other oculars		2006051-01		2006051-02		2006051-03	
Test Items		Left	Right	Left	Right	Left	Right
89.1The relative change of luminous transmittance (%)	Before Expose	91.5	91.2	91.0	90.8	91.0	91.3
	After Expose	91.2	91.4	91.2	91.0	91.2	91.2
	Difference	-0.3	0.2	0.2	0.2	0.2	-0.1
Reduced scattered light coefficient (cd/m ²) / lx	Before Expose	0.21	0.28	0.34	0.32	0.17	0.29
	After Expose	0.20	0.21	0.32	0.35	0.28	0.25
Result(s)		P		P		P	
Requirements:							
1. The relative change of luminous transmittance				2. Reduced scattered light coefficient			
Luminous transmittance		Permissible relative Change (%)		The maximum value of the reduced luminance factor shall be: - 1.00(cd/m ²) / lx for welding filter; - 0.75(cd/m ²) / lx for oculars used in eye-protectors against high speed particles; - 0.50 (cd/m ²) / lx for all other oculars;			
Less than (%)	Up to (%)						
100	17.8						
17.8	0.44						

Measurement Uncertainty (if necessary):

Resistance to ignition — Clause 7.1.7 / EN 168:2001 Clause 7

Sample No.	Continued combustion		Comment	Result(s)
	Yes	No		
2006051-(04~06)		X	--	P
Requirements: Eye-protectors shall be considered to be satisfactory if no parts ignites or continues to glow after removal of the steel rod.				

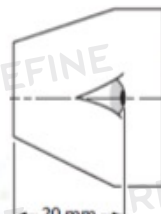
Test Report

Report No.: PL2006051

Page 9 of 12

Test Results

Lateral Protection — Clause 7.2.8 / EN 168:2001 Clause 19

Sample No.	Lateral region coverage		Comment	Result(s)
	Pass	Fail		
2006051-(01~03)	X		—	P
Requirements: Eye-protectors claimed to lateral protection shall pass the lateral region coverage. These region being a 20mm wide with 10 mm radial ends struck from the front and side impact points (See figure 1)			Figure 1: 	

Protection against high-speed particles — Clause 7.2.2 / EN 168:2001 Clause 9

Impact speed of ball: 45+1.5/-0 m/s for low energy Impact (F)						
Sample No.	Impact Position		Defects		Comment	Result(s)
			Observed	Absent		
2006051-(12~16)	Left	Frontal		X	--	P
		Side		X	--	P
2006051-(17~21)	Right	Frontal		X	--	P
		Side		X	--	P
Requirements: The following defects shall not occur: 1. ocular fracture 2. ocular deformation: 3. ocular housing or frame fracture						

Test Report

Report No.: PL2006051

Page 10 of 12

Test Results

Protection against chemical droplets — Clause 7.2.4 / EN 168:2001 Clause 12

Sample No.	Shows a Crimson		Comment	Result(s)
	Observed	Absent		
2006051-(10~12)		X	--	P
Requirements: Shall be considered to be satisfactory if no spray solution penetrate goggles.				

** Resistant to Fogging of Oculars — Clause 7.3.2/ EN 168:2001 Clause 16

Sample No.	Position	After Fogging Test Evaluation		Comment	Result
		Fogging	Free Fogging		
2006051-(10~11)	Left		X	--	P
	Right		X		P
Requirements:					
If oculars are described as resistant to fogging they shall remain free from fogging for a minimum of 8s.					

Remark: **Non-accredited items



Test Report

Report No.: PL2006051

Page 11 of 12

Test Results

Marking — Clause 9

Sample No.	Result of observed		Comment	Results
	Pass	Fail		
2006051-01	X		--	P
Requirement:				
1. General:				
a. All markings shall be clear and permanent.				
b. The marking shall be fully visible when the complete eye-protector is assembled and shall not encroach into the minimum field of vision. Outside of this area the marking shall not impede vision when worn.				
c. The number of this standard shall be applied to frames and housings but need not be applied to oculars.				
d. The frame and ocular shall be marked separately. If the ocular and frame form a single unit, the complete marking shall be applied to the frame.				
2. Ocular marking (The marking of oculars shall contain the relevant technical information presented.)				
a. ☐ Scale number(See clause 4.1, table 1)				
b. ☒ Identification of the manufacturer				
c. ☒ Optical class(Except in the case of cover plates which are always to be class 1)				
d. ☒ Mechanicals strength(See table 13)				
e. ☐ Resistance to short circuit electric arc (marked No. 8)				
f. ☐ Non-adherence of molten metal and resistance to penetration of hot solids(Marked No. 9)				
g. ☐ Resistance to surfaces damage by fine particles(Marked with the symbol K)				
h. ☐ Resistance to fogging of oculars(Marked with the symbol N)				
i. ☐ Original/replacement oculars(may be marked with the symbol "O"(original) or "▽" (replacement)				
j. ☐ Resistance to high speed particles at extremes of temperature (marked the impact symbol, e.g. FT, BT, or AT.				
k. ☐ Marking of laminated oculars				
3. Frame marking (shall be contain the relevant technical information presented)				
a. ☒ Identification of the manufacturer				
b. ☒ The number of this standard				
c. ☒ Field of use(See table 14)				
d. ☐ Increased robustness and resistance to high speed particles. e.g. S, F, B, or A (See table 15)				
e. ☐ Resistance to high speed particles at extremes of temperature (marked the impact symbol, e.g. FT, BT or AT.				
f. ☐ Fit small head(Marked with H)				
g. ☐ Highest ocular scale number (Apply for housings of goggles and face shields intended to provide protection against optical radiation				
4. Marking of eye-protectors where the frame and ocular for a single unit				
The marking shall comprise the full ocular marking, a hyphen, the number of this standard and then any appropriate symbols for field of use and level of impact.				



Test Report

Report No.: PL2006051

Page 12 of 12

Test Results

Information supplied by the manufacturer — Clause 10

Sample No.	Result of observed		Comment	Results
	Pass	Fail		
2006051-01	X		--	P
Requirement:				
1. Name and address of the manufacturer				
2. The number of this standards				
3. The eye-protector model identification				
4. Instructions for storage, use and maintenance				
5. Specific instructions for cleaning and disinfection				
6. Details of the field of use, protection capabilities and performance characteristics				
7. The significance of making on the fame and the ocular				
8. A warning concerning the compatibility of marking				
9. A warning that materials which may come into contact with the wearer's skin could cause allergic reactions to susceptible individuals				
10. A warning that scratched or damaged oculars should be replaced				
11. A warning that eye-protection against high speed worn over standard ophthalmic spectacles may transmit impacts, thus creating a hazard to the wearer.				

-----Report End-----

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