Test Report

Report No.: PL 2004574 Page 1 of 9

Applicant: Guangzhou City Huadu District Xiuquan Lituo Optical Glasses Factory

Address of Applicant: No.1, Baixing Roda, Dabu Industrial Zone, Xiuquan Street, Huadu District, Guangdong, China

Date of Receiving Samples: Apr 20, 2020

Testing Period: Apr 20, 2020 to Apr 25, 2020

Description of Samples

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

Item name:	Safety Spectacle
Style No.:	DK1
Material:	Plastic
Frame Color:	Clear
Lenses Color:	Clear
Cat. No.:	Not Provided
Order No.:	Not Provided
Manufacturer /Supplier:	Not provided
Brand:	Not provided
Buyer:	Not provided
Country of Destination:	Not provided
Country of Origin:	China

Results/Remarks: Please refer to the following page(s).

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Issued by stamp

Date of Issued: Apr 25, 2020

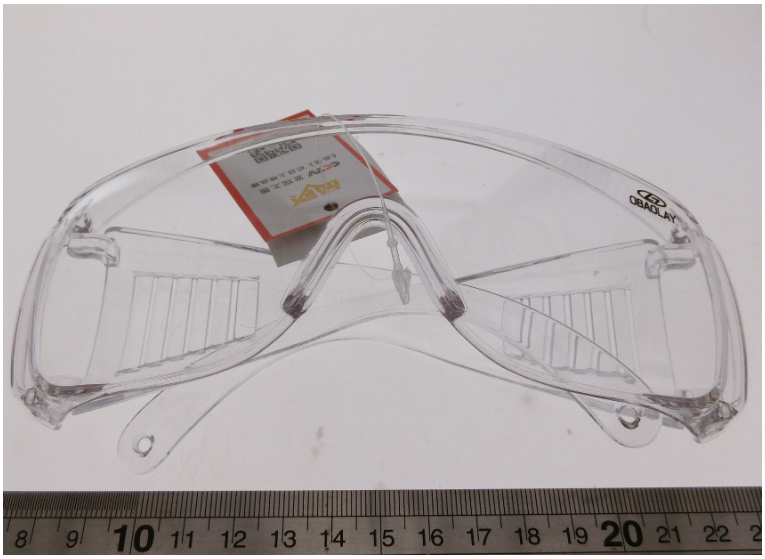
For and on behalf of:

Shenzhen Precision Eyewear

Testing & Inspection Services Co., Ltd.

Manager: WenHua Li

Sample Photo:



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Conclusion:

Tested Samples	Required Standard	Result
Submitted Samples	AS/NZS 1337.1: 2010 Personal Eye Protection – Part 1: Eye and Face Protectors for Occupational Applications, exclude: - Clause 3.5 Marking of assembled eye and face protectors and Packaging	Pass

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Test Report

Tests Conducted Summary

Requirement		According to Clause	Results
Section 3 Requirement for assembled eye and face protectors			
3.2.3 Optical properties of oculars (shall comply with clauses 2.1 to 2.4)			
Visual quality		2.3.1	P
Viewing area		2.3.2	P
Transmittance properties & transmittance requirements	**General**	2.4.3 & 2.4.4	P
	Claims of luminous transmittance		NA (No claim)
Other Transmittance requirements	**Uniformity of luminous transmittance of uniformly tined filters**	2.4.5	P
	Transmittance matching for pairs of filters of all types		P
	Uniformity of colour for pairs of filters of all types		P
Special transmittance requirement	**Photochromic filters**	2.4.6	NA
	Polarizing filters		NA
	Gradient filters		NA
Refractive powers of oculars	**Spherical and astigmatic powers**	2.4.7	P
	Local aberration in spherical and astigmatic powers		P
	Prismatic powers (Individual oculars)		NA (Can clearly focused)
	Prismatic powers difference (Pairs of oculars)		P
Scattered light		2.4.8	P

Tests Conducted Summary

Requirement		According to Clause	Results
Section 3 Requirement for assembled eye and face protectors			
Material and surface quality		2.4.9	P
Impact resistance (Low impact resistance)		3.2.7	P
Penetration resistance		3.2.8	P
Resistance to Ignition		3.2.9	P
Thermal stability		3.2.10	P
Protection against corrosion		3.2.11	NA (No metal parts)
Medium impact resistance		3.3.1	NA (No claim)
Marking of assembled eye and face protectors and Packaging		3.5	NR
Section 4 Optical tests and claims			
Claimed transmittance requirements	**Blue-light absorption/ transmittance**	4.1	NA (No claim)
	UV absorption/ transmittance		NA (No claim)
Flame propagation		4.2	NA (No claim)

Remarks: P = Pass; F = Fail; NA = Not Applicable; NR=Not require; Cat. = Category, X=checked

Test Results

Optical properties of oculars — Clause 3.2.3 / Visual quality — Clause 2.3.1

Material and surface quality — Clause 2.4.9 / Thermal stability — Clause 3.2.10

Sample No.	Defects of impair vision or prevent the use		Physical distortion after thermal stability testing		Comment	Result(s)
	Observed	Absent	Observed	Absent		
2004574-01		X		X	--	P
2004574-02		X		X	--	P
2004574-03		X		X	--	P

Requirements:

1. **Visual quality:** Eye and face protectors shall be free from projections, sharp edges, or other features likely to cause discomfort or injury during use. Adjustable or interchangeable parts or components incorporated in eye and face protectors shall be simple to adjust, interchange or replace.
2. **Material and surface quality**:
   a. Oculars shall be reasonably free pits, scratches, greyness, watermark, bubbles, striae, local aberrations and inclusions which could impair vision or prevent the use of oculars for their intended purpose in the viewing area or an area of 28mm diameter centred on the reference point.
   b. Single defect outside this area and within 5mm of frame edges are permissible.
3. **Thermal stability**: No Physical distortion.

Optical properties of oculars — Clause 3.2.3

Sample No.	Samples type	Viewing area				Result(s)
		Box length		Box depth		
		Pass	Fail	Pass	Fail	
2004574-04	Spectacle eye protector	X		X		P
2004574-05	Spectacle eye protector	X		X		P
2004574-06	Spectacle eye protector	X		X		P

Requirements:

Samples type	Viewing area		Samples type	Viewing area	
	Box length	Box depth		Box length	Box depth
Eyecup goggles	≧50mm	≧40mm	Spectacle eye protector	≧42mm	≧32mm
Safety clip -ons	≧42mm	≧32mm	Wide –vision spectacle	≧35mm	≧30mm
Eye-shield	≧100mm	≧60mm	Face-shield	≧100mm	≧125mm
Wide –vision goggle	≧100mm	≧42mm	Wire-mesh screens	≧100mm	≧85mm

Test Results

Optical properties of oculars — Clause 3.2.3

Transmittance properties & transmittance requirements — Clause 2.4.3, 2.4.4

Test Parameter		Requirements	Sample No. 2004574-01 Left	2004574-01 Right	2004574-02 Left	2004574-02 Right	2004574-03 Left	2004574-03 Right
Luminous transmittance (380-780nm), τ_v (%)		☒ For Cat. 0: 80-100% ☐ For Cat. 1: 43 - 80%	89.9	91.2	90.1	91.4	89.5	91.4
Oculars categories (Claim: Not provided)		☐ For Cat. 2: 18 - 43% ☐ For Cat. 3: 8- 18% ☐ Outdoor untinted: 80-100%	Cat.0	Cat.0	Cat.0	Cat.0	Cat.0	Cat.0
Claims of Luminous transmittance, τ_v (%) (Claim : Not provided)		For Cat. 0 to 3, it shall be ±3% absolute of the measured values	NA	NA	NA	NA	NA	NA
Minimum spectral transmittance (%) (470~650nm)		≧0.2τ_v	0.98τ_v	0.98τ_v	0.98τ_v	0.98τ_v	0.99τ_v	0.98τ_v
Relative visual attenuation for signal light Detection(Q)	Red	≧0.80	1.01	1.01	1.00	1.01	1.00	1.00
	Yellow	≧0.80	1.00	1.00	1.00	1.00	1.00	1.00
	Green	≧0.80	1.00	1.00	1.00	1.00	1.00	1.00
	Blue	≧0.80	1.00	1.00	1.00	1.00	1.00	1.00
Spectral Transmittance (%)	$\tau_{F(\lambda)}$ (280-315nm)	☒ For Cat. 0 to 2: ≦0.05τ_v ☐ For Cat. 3 and Outdoor ☐ For Outdoor untinted: ≦0.01τ_v	0.1	0.1	0.1	0.0	0.0	0.1
	$\tau_{F(\lambda)}$ (315-350nm)	☒ For Cat. 0 to 2: ≦τ_v; ☐ For Cat. 3: ≦0.50τ_v ☐ For Outdoor untinted: ≦0.25τ_v	0.0	0.0	0.0	0.0	0.0	0.0
Mean value of spectral transmittance (%) (315 -380nm)		☒ For Cat. 0 to 2: ≦τ_v; ☐ For Cat. 3: ≦0.50τ_v ☐ For Outdoor untinted :≦0.25τ_v	0.0	0.0	0.0	0.0	0.0	0.0
Result(s)			P		P		P	

Measurement Uncertainty (if necessary):

Remark: *= Failed data.

Test Results

Optical properties of oculars — Clause 3.2.3

Other Transmittance requirements — Clause 2.4.5

Test Items	Requirements	Location	Sample No.		
			2004574-01	2004574-02	2004574-03
Uniformity of luminous transmittance (τ_v) of uniformly tined filters (%)	The minimum luminous transmittance shall not be less than 85% of maximum.	Left	100	99.2	99.1
		Right	99.8	99.2	99.7
Transmittance matching for pairs of filters of all types (%)	The relative difference between the luminous transmittance at corresponding points within Φ28mm on the reference points for right and left eye shall not exceed 15% of the higher transmittance.	--	1.4	2.1	1.4
Uniformity of colour for pairs of filters of all types	Pairs of filter mounted in a frame shall appear to be of same at corresponding points within Φ28mm centered on reference points.	--	Meet	Meet	Meet
Result(s)			P	P	P

Measurement Uncertainty (if necessary):

Optical properties of oculars — Clause 3.2.3 / Spherical and astigmatic powers— Clause 2.4.7

Thermal stability — Clause 3.2.10

Sample No.	Temperature stability (Yes or No)	Spherical powers (m^{-1})		Astigmatic powers (m^{-1})		Prismatic powers (cm/m)					Result(s)
						Prismatic powers		Prismatic powers difference			
								Horizontal, Base		Vertical	
		Left	Right	Left	Right	Left	Right	Out	In		
2004574-01	No	+0.01	-0.01	0.00	0.06	0.08	0.10	--	0.10	0.01	P
2004574-02	No	+0.02	0.00	0.00	0.05	0.05	0.18	--	0.15	0.01	P
2004574-03	No	+0.01	-0.01	0.00	0.06	0.09	0.11	--	0.09	0.00	P
2004574-01	Yes	+0.01	-0.01	0.00	0.06	0.08	0.10	--	0.10	0.01	P
2004574-02	Yes	+0.02	0.00	0.00	0.05	0.05	0.18	--	0.15	0.01	P
2004574-03	Yes	+0.01	-0.01	0.00	0.06	0.09	0.11	--	0.09	0.00	P
Requirements		≦±0.09		≦±0.09		≦0.25		≦1.00	≦0.25	≦0.25	

Measurement Uncertainty (if necessary):

Test Results

Optical properties of oculars — Clause 3.2.3

Scattered light — Clause 2.4.8

Sample No.	Diffusion of light (cd/m²) / lx		Result(s)
	Left	Right	
2004574-01	0.07	0.04	P
2004574-02	0.35	0.12	P
2004574-03	0.05	0.08	P
Requirements: The maximum value of the reduced luminance factor shall be : 0.65(cd/m²) / lx;			

Measurement Uncertainty (if necessary):

Impact resistance (Low impact resistance) — Clause 3.2.7

Thermal stability — Clause 3.2.10

Sample No.	Temperature stability (Yes or No)	Location*	Defects		Comment	Result(s)
			Observed	Absent		
2004574-07	No	a		X	--	P
2004574-08	No	b		X	--	P
2004574-09	No	c		X	--	P
2004574-10	Yes	a		X	--	P
2004574-11	Yes	b		X	--	P
2004574-12	Yes	c		X	--	P

Requirements:

The following defects shall not occur:

1. If it cracks through its entire thickness into two or more pieces.
2. If more than 5mg of the ocular material becomes detached from the surface away from the one struck by the ball.
3. If the ball passes through the ocular.
4. If the ocular dislodges from the normal position.
5. If contact is made with either eye of test headform by the ball, frame, ocular or a part or fragment of these.

Note: *a= Reference point; b= within 20mm of the mid-line; c= at 90° to straight ahead, the same as below.

Test Results

Penetration resistance — Clause 3.2.8

Thermal stability — Clause 3.2.10

Sample No.	Temperature stability (Yes or No)	Location	Defects		Comment	Result(s)
			Observed	Absent		
2004574-13	No	a		X	--	P
2004574-14	No			X	--	P
2004574-15	Yes			X	--	P
2004574-16	Yes			X	--	P

Requirements:
The following defects shall not occur:
1 if it cracks through its entire thickness into two or more pieces;
2 if the point of projectile pierces the surface of the ocular remote from that surface struck by the projectile; or
3. if contact is made with either eye of test headform by the ball ,frame, ocular or an part or fragment of these.

Resistance to ignition — Clause 3.2.9

Sample No.	Continued combustion		Comment	Result(s)
	Yes	No		
2004574-06		X	--	P

Requirements:
The ocular shall be considered to be satisfactory if no parts ignites or continues to glow after removal of the steel rod.

------ End of Test Report -----