



Test Report

Report No.: PL2004291

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Applicant: Shenzhen Heto Medical Tech Co., Ltd

Address of Applicant: 4th Floor, Building No.4, Shenzhen Environmental Protection Park, No.31
Makan South Road, Xili, Nanshan District, Shenzhen City, 518055, China

Date of Receiving Samples: Apr 11, 2020

Testing Period: Apr 11, 2020 to Apr 15, 2020

Description of Samples

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

Sample Name: Medical Safety Goggles

Model No.: G01/G02

Quantity: 12 Pairs

Material: Plastic

Scale No.: Not provided

Frame Color: Transparent blue/Black

Lenses Color: Clear

P.O. No.: Not provided

Supplier / Brand: Not provided

Buyer: Not provided

Goods exported to: Not provided

Country of Origin: China

Requested Standard: 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

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



Issued by stamp

Date of Issued: Apr 16, 2020

For and on behalf of:
Shenzhen Precision Eyewear
Testing & Inspection Services Co., Ltd.

Manager: WenHua Li

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Tests Conducted

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



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Tests Conducted

Requirement		Testing				Results
Test Items		According to		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 robustness	Unmounted oculars	166	7.1.4.2.1	168	3.1	NA
	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	NA
Protection against droplets and splashes		166	7.2.4	168	12	NR
Lateral protection		166	7.2.8	168	19	P
Resistance to fogging of oculars		166	7.3.2	168	16	NR
Information supplied by the manufacturer		166	10	--	--	NR

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.

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Test Result

General construction — Clause 6.1 / Headbands — Clause 6.3

Sample No.	General construction		Headbands				Comment	Result(s)
	Defects		Width		Adjustable			
	Observed	Absent	Pass	Fail	Yes	No		
2004291-(01~03)		X	X		X		--	P

Requirements:

- General construction: Eye-Protectors shall be free of projections, sharp edges or other defects which are likely to cause discomfort or injury during use.
- 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		
2004291-(01~03)	X		X		--	P

Requirements:

Eye-Protectors shall 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		
2004291-01	+0.02	+0.01	0.00	0.00	--	0.02	Optical Class 1	
2004291-02	+0.02	+0.00	0.00	0.00	--	0.01		
2004291-03	+0.02	+0.01	0.00	0.00	--	0.01		

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):

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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	
2004291-01	$T_v > 74.4\%$	91.5	91.6	P
2004291-02		91.6	91.8	P
2004291-03		91.2	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	
2004291-01	III	0.04	0.10	P
2004291-02		0.04	0.10	P
2004291-03		0.04	0.10	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):

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Test Result

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

Sample No.	Defects		Comment	Result(s)
	Observed	Absent		
2004291-(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 3.1

Sample No.	Test temperature (°C)	Test position	Defects		Comment	Result(s)
			Observed	Absent		
2004291-(04~05)	55	Left Frontal		X	--	P
2004291-06		Left Lateral		X	--	P
2004291-(07~08)	-5	Left Frontal		X	--	P
2004291-09		Left Lateral		X	--	P
2004291-(04~05)	55	Right Frontal		X	--	P
2004291-06		Right Lateral		X	--	P
2004291-(07~08)	-5	Right Frontal		X	--	P
2004291-09		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		
2004291-(04~06)		X	--	P
Requirements: Assembled eye-protectors shall show no apparent deformation;				

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Test Results

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

Samples type		Sample No.														
Other oculars		2004291-01		2004291-02		2004291-03										
Test Items		Left	Right	Left	Right	Left	Right									
The relative change of luminous transmittance (%)	Before Expose	91.5	91.6	91.6	91.8	91.2	91.3									
	After Expose	91.4	92.0	91.2	91.5	90.9	92.0									
	Difference	-0.1	0.4	-0.4	-0.3	-0.3	0.8									
Reduced scattered light coefficient (cd/m ²) / lx	Before Expose	0.04	0.10	0.04	0.10	0.04	0.10									
	After Expose	0.06	0.05	0.05	0.04	0.06	0.08									
Result(s)		P		P		P										
Requirements:																
1. The relative change of luminous transmittance				2. Reduced scattered light coefficient												
<table border="1"> <thead> <tr> <th colspan="2">Luminous transmittance</th> <th rowspan="2">Permissible relative Change (%)</th> </tr> <tr> <th>Less than (%)</th> <th>Up to (%)</th> </tr> </thead> <tbody> <tr> <td>100</td> <td>17.8</td> <td>±5</td> </tr> <tr> <td>17.8</td> <td>0.44</td> <td>±10</td> </tr> </tbody> </table>		Luminous transmittance		Permissible relative Change (%)	Less than (%)	Up to (%)	100	17.8	±5	17.8	0.44	±10	The maximum value of the reduced luminance factor shall be: <ul style="list-style-type: none"> - 1.00(cd/m²) / lx for welding filter; - 0.75(cd/m²) / lx for oculars used in eye-protectors against high speed particles; - 0.50 (cd/m²) / lx for all other oculars; 			
Luminous transmittance		Permissible relative Change (%)														
Less than (%)	Up to (%)															
100	17.8	±5														
17.8	0.44	±10														

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		
2004291-(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.				

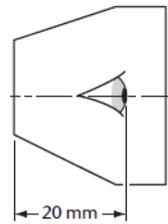
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Lateral Protection — Clause 7.2.8 / EN 168:2001 Clause 19

Sample No.	Lateral region coverage		Comment	Result(s)
	Pass	Fail		
2004291-(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: 	

Sample Photo:



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

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