TEST REPORT

Applicant: MID OCEAN BRANDS B.V.
7/F KINGS TOWER
111 KING LAM STREET
CHEUNG SHA WAN
KLN
Attn: DEREK HUI / EMMA LAM

Number: HKGH03192071 S1

Date: Nov 20, 2024

Sample and Information provided by customer	:	
Item Name	:	**MO2544 Sports sunglasses with mirror lenses and black frame**
Item No.	:	**MO2544**
Quantity	:	5 pairs each
Vendor	:	115663
Country of Origin	:	China
Date sample received	:	Oct 29, 2024
Testing period	:	Oct 29, 2024 to Nov 18, 2024

****

For and on behalf of :
Intertek Testing Services HK Ltd.

Dorothy M.Y. Lau
Vice President

Intertek Testing Services Hong Kong Limited
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Conclusion:
The submitted sample was tested under the following requirements requested by the applicant, subject to the information stated in the remark and attached page(s) for details :

	Requirement	Result
(1)	UV-400	Pass
(2)	BS EN ISO 12312-1:2013+A1:2015 Eye and face protection – Sunglasses and related eyewear – Part 1: Sunglasses for general use, excluding: - Clause 4.3 - Physiological compatibility - Clause 5.3.2.2 - Driving in twilight or at night - Clause 12 - Information and labeling	Pass

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Decision Rule(s):
When a statement of conformity to a specification or standard is provided on test report, the decision rule shall be applied. For details, please refer to Intertek's "Decision Rule Document" and is available on Intertek's website. https://intertekhk.grd.by/decision-rule-doc..
If decision rule already inhered in the requested specification or standard, Intertek's "Decision Rule Document" is not applicable and indication of "∞" was shown as above table.

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Note : This is to supersede Report No. HKGH03192071 dated Nov 19, 2024 due to Amending test result

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(1) UV-400

Test Method : Assessment was made against a level of 100% UV protection, in which the spectral transmittance was examined within a range of 280nm - 400nm to ensure that a transmittance value of 0.5% was not exceeded.

Number of samples tested: One (1) pair per style; total three (3) styles.

Sample	Style
(A)	Black
(B)	Purple
(C)	Orange

Result :

Wavelength (nm)	Transmittance (%)					
	Sample (A)		Sample (B)		Sample (C)	
	Left ocular	Right ocular	Left ocular	Right ocular	Left ocular	Right ocular
280	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
285	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
290	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
295	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
300	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
305	0.13	0.11	0.12	0.15	0.13	<0.10
310	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
315	0.13	<0.10	<0.10	0.11	0.10	<0.10
320	<0.10	<0.10	0.12	<0.10	<0.10	<0.10
325	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
330	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
335	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
340	<0.10	0.14	<0.10	<0.10	<0.10	<0.10
345	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
350	<0.10	0.17	<0.10	0.16	0.15	<0.10
355	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
360	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
365	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
370	0.18	0.28	0.19	0.28	0.21	0.22
375	<0.10	<0.10	<0.10	0.11	<0.10	<0.10
380	<0.10	0.12	<0.10	<0.10	<0.10	<0.10
385	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
390	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
395	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
400	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10

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Comment :The submitted sample were considered acceptable to make a claim of "UV 400" protection, the criteria of which was mentioned above.

Date sample received : Oct 29, 2024
Testing period : Oct 29, 2024 to Nov 13, 2024

(2) Requirements for Sunglasses (Uniformly Tinted Lenses)

Test standard: BS EN ISO 12312-1:2013+A1:2015 – Eye and face protection – Sunglasses and related eyewear – Part 1: Sunglasses for general use

Test method refers ISO 12311:2013 Personal protective equipment - Test methods for sunglasses and related eyewear.

Number of samples tested: Four (4) pairs (Black)

Note :
(1) The submitted sunglasses were declared by applicant for adult use.
(2) Physiological compatibility
Note: Sunglasses shall be designed and manufactured in such a way that when used under the conditions and for the purposes intended, they will not compromise the health (and safety) of the wearer. The risks posed by substances leaking from the device that may come into prolonged contact with the skin shall be reduced by the manufacturer to below any regulatory limit. Special attention shall be given to substances which are allergenic, carcinogenic, mutagenic or toxic to reproduction.
(3) CE marking or UKCA marking is not specified in BS EN ISO 12312-1:2013+A1:2015. However, per Regulation (EU) 2016/425 or UK2019 SI696 Schedule 35 Regulation 38, the CE marking or UKCA marking shall be affixed visibly, legibly and indelibly to the sunglasses frame respectively.

It was found that both CE marking and UKCA marking were provided on the sunglasses frame.

Clause	Requirement	Result
4	Construction and materials	
4.1	Construction	P
4.2	Filter material and surface quality	P
4.3	Physiological compatibility	Note (2)
5	Transmittance	
5.2	Transmittance and filter categories	P
5.3	General transmittance requirements	
5.3.1	Uniformity of luminous transmittance	P
5.3.2.1a	Spectral transmittance	P
5.3.2.1b	Detection of signal lights	P
5.3.2.2	Driving in twilight or at night	#1
5.3.3	Wide angle scattering	P

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Clause	Requirement	Result
5.3.4	Additional transmittance requirements for specific filter types	
5.3.4.1	Photochromic filters	NA
5.3.4.2	Polarizing filters	NA
5.3.4.3	Gradient filters	NA
5.3.5	Claimed transmittance properties	NA (No claim)
6	Refractive power	
6.1	Spherical and astigmatic power	P
6.2	Local variations in refractive power	NA
6.3	Prism imbalance (relative prism error)	P
7	Robustness	
7.1	Minimum robustness of filters	P
7.2	Frame deformation and retention of filters	P
7.3	Impact resistance of the filter, strength level 1 (optional specification)	NA (No claim)
7.4	Increased endurance of sunglasses (optional specification)	NA (No claim)
7.5	Resistance to perspiration (optional specification)	NA (No claim)
7.6	Impact resistance of the filter, strength level 2 or 3 (optional specification)	NA (No claim)
8	Resistance to solar radiation	P
9	Resistance to ignition	P
10	Resistance to abrasion (optional specification)	NA (No claim)
11	Protective requirements	
11.1	Coverage area	P
11.2	Temporal protective requirements	NA
12	Information and labeling	
12.1	Information to be supplied with each pair of sunglasses	#2 (Note 3)
12.2	Additional information	#3

Abbreviation: P = Pass; NA = Not Applicable

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Test data:

5.2 Transmittance and filter categories

Range	Left ocular (%)	Right ocular (%)	Filter category
380 - 780nm (Tv)	12.84	12.30	3

Range	Maximum transmittance (%)		Limit (%)	
	Left ocular	Right ocular	Left	Right
280 - 315nm (T_{SUVB})	< 0.10	< 0.10	≤ 1.0	≤ 1.0
315 - 380nm (T_{SUVA})	< 0.10	< 0.10	≤ 0.5Tv (6.42)	≤ 0.5Tv (6.15)

Requirement:

Consumer label	Technical label	Requirements		
Descriptive label	Filter category	Ultraviolet spectral range		Visible spectral range
		Maximum value of solar UV-B transmittance T_{SUVB} 280 nm to 315 nm	Maximum value of solar UV-A transmittance T_{SUVA} 315 nm to 380 nm	Range of luminous transmittance (Tv) 380 nm to 780 nm
Light tint sunglasses	0	0.05 Tv	Tv	Tv > 80%
	1	0.05 Tv	Tv	43% < Tv ≤ 80%
General purpose sunglasses	2	1.0% absolute or 0.05 Tv, whichever is greater	0.5 Tv	18% < Tv ≤ 43%
	3	1.0% absolute	0.5 Tv	8% < Tv ≤ 18%
Very dark special purpose sunglasses	4	1.0% absolute	1.0% absolute or 0.25 Tv, whichever is greater	3% < Tv ≤ 8%

5.3.1 Uniformity of luminous transmittance

Uniformity	Left ocular	Right ocular	Limit (%)
% variation within filter [relative to higher value] - after correction	3.63	7.41	≤ 10
% difference between filters [relative to lighter filter]	4.21		≤ 15

Note: The above correction was based on Annex L of ISO 12311 - method to correct transmittance for variations in thickness of the filter, with the input of refractive index provided by supplier/ manufacturer.

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5.3.2.1a Spectral transmittance

Range	Minimum transmittance (%)		Limit (%)	
	Left ocular	Right ocular	Left ocular	Right ocular
475 - 650nm	9.92	9.43	≥ 0.2 Tv (2.57)	≥ 0.2 Tv (2.46)

5.3.2.1b Detection of signal lights

Signal light	Relative visual attenuation quotient, Q		Limit
	Left ocular	Right ocular	
Red	1.03	1.03	≥ 0.80
Yellow	0.94	0.94	≥ 0.60
Blue	1.20	1.21	≥ 0.60
Green	1.03	1.03	≥ 0.60

5.3.3 Wide angle scattering

Wide angle scattering (%)	Left ocular	Right ocular	Requirement
	0.6	0.8	≤ 3

6.1 Optical power of oculars mounted in spectacles

Optical power	Left ocular	Right ocular	Limit
Spherical power (m^{-1})	-0.05	-0.03	± 0.12
Astigmatic power (m^{-1})	0.05	0.02	≤ 0.12
Difference of spherical power between left and right filters (m^{-1})	0.02		≤ 0.18

6.3 Prism imbalance (relative prism error)

Prismatic power difference (cm/m)			Limit (cm/m)
Horizontal	Base out	0.25	≤ 1.00
	Base in	- -	≤ 0.25
Vertical		0	≤ 0.25

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8 Resistance to radiation

(a) Relative change in the luminous transmittance after irradiation

Left ocular (%)	+1.13	Requirement ± 3% for category 0 ± 5% for category 1 ± 8% for category 2 ± 10% for categories 3 & 4
Right ocular (%)	+1.46	

(b) Wide angle scattering after solar radiation

Left ocular (%)	Right ocular(%)	Requirement (%)
0.6	0.8	≤ 3

(c) After the solar radiation process, the submitted sample also met the requirement for the ultraviolet spectral range for Tv as given by table 1 of the standard.

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Remarks:

#1 - The applicant shall provide that the following warning will be printed on the labels, packaging,etc that accompanies the sunglasses at the point of the sale:
- "Not suitable for driving in twilight or at night" or
- "Not suitable for driving at night or under condition of dull light"

#2 - The manufacturer shall provide information for the user with each pair of sunglasses. This information shall be in the form of markings on the frame or separate information on labels, packaging, etc., that accompanies the sunglasses at the point of sale.

a) Identification of model.
b) Name and address of the manufacturer.
c) Reference to this part of ISO 12312.
d) Type of filter, if photochromic and/or polarizing.
e) Number of the filter category (in both the faded and darkened states for photochromic filters) marked preferably on the frame or on the filter.
f) Description of the filter category in the form of a symbol and/or verbal description as given in Table 5. and and explanation of these symbols. The minimum height of the symbols shall be 5 mm.
g) Restrictions of use, which shall include at least the following:
   1) not for direct observation of the sun;
   2) not for protection against artificial light sources e.g. solaria;
   3) not for use as eye protection against mechanical impact hazards (for products not satisfying the requirements of 7.3 or 7.6);
   4) any other restrictions deemed appropriate to be communicated by the manufacturer, e.g. increased or decreased transmittance of photochromic glasses due to high or low temperatures or to low light conditions.
h) When the filter does not meet the necessary requirements for driving and for filter category 4, the following warning: "Not suitable for driving and road use" in the form of either of the symbols shown in figure 2 of BS EN ISO 12312-1:2013+A1:2015 and/or in writing. The minimum height of the symbol shall be 5 mm.
j) If relevant, instructions for care and cleaning if the wrong use of cleaning products might damage the sunglasses and a list of damaging products not suitable for cleaning.

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#3 - The following information shall be available from the manufacturer on request.

a) An explanation of the trademarks that are not universally recognized or foreseen by the users of this part of ISO 12312.
b) The position of the reference point when different from the one defined in this part of ISO 12312.
c) The country of origin (e.g. "made in .. .. ").
d) The nominal value of luminous transmittance.
e) Transmission requirements applicable to this product.
f) Polarization efficiency in cases of polarizing filters.
g) The base material of filters and frame.

∞ - Decision rule required by the standard

If the measurement result plus or minus the uncertainty of measurement overlap the limit value of the test, the result shall be deemed to be a failure.

Date sample received : Oct 29, 2024
Testing period : Oct 29, 2024 to Nov 18, 2024

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Requirements for Sunglasses (Uniformly Tinted Lenses)

Test standard: BS EN ISO 12312-1:2013+A1:2015 – Eye and face protection – Sunglasses and related eyewear – Part 1: Sunglasses for general use

Test method refers ISO 12311:2013 Personal protective equipment - Test methods for sunglasses and related eyewear.

Number of samples tested: Four (4) pairs (Purple)

Note :

(1) The submitted sunglasses were declared by applicant for adult use.

(2) Physiological compatibility
Note: Sunglasses shall be designed and manufactured in such a way that when used under the conditions and for the purposes intended, they will not compromise the health (and safety) of the wearer. The risks posed by substances leaking from the device that may come into prolonged contact with the skin shall be reduced by the manufacturer to below any regulatory limit. Special attention shall be given to substances which are allergenic, carcinogenic, mutagenic or toxic to reproduction.

(3) CE marking or UKCA marking is not specified in BS EN ISO 12312-1:2013+A1:2015. However, per Regulation (EU) 2016/425 or UK2019 SI696 Schedule 35 Regulation 38, the CE marking or UKCA marking shall be affixed visibly, legibly and indelibly to the sunglasses frame respectively.

It was found that both CE marking and UKCA marking were provided on the sunglasses frame.

Clause	Requirement	Result
4	Construction and materials	
4.1	Construction	P
4.2	Filter material and surface quality	P
4.3	Physiological compatibility	Note (2)
5	Transmittance	
5.2	Transmittance and filter categories	P
5.3	General transmittance requirements	
5.3.1	Uniformity of luminous transmittance	P
5.3.2.1a	Spectral transmittance	P
5.3.2.1b	Detection of signal lights	P
5.3.2.2	Driving in twilight or at night	#1
5.3.3	Wide angle scattering	P
5.3.4	Additional transmittance requirements for specific filter types	
5.3.4.1	Photochromic filters	NA
5.3.4.2	Polarizing filters	NA
5.3.4.3	Gradient filters	NA
5.3.5	Claimed transmittance properties	NA (No claim)
6	Refractive power	
6.1	Spherical and astigmatic power	P

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Clause	Requirement	Result
6.2	Local variations in refractive power	NA
6.3	Prism imbalance (relative prism error)	P
7	Robustness	
7.1	Minimum robustness of filters	P
7.2	Frame deformation and retention of filters	P
7.3	Impact resistance of the filter, strength level 1 (optional specification)	NA (No claim)
7.4	Increased endurance of sunglasses (optional specification)	NA (No claim)
7.5	Resistance to perspiration (optional specification)	NA (No claim)
7.6	Impact resistance of the filter, strength level 2 or 3 (optional specification)	NA (No claim)
8	Resistance to solar radiation	P
9	Resistance to ignition	P
10	Resistance to abrasion (optional specification)	NA (No claim)
11	Protective requirements	
11.1	Coverage area	P
11.2	Temporal protective requirements	NA
12	Information and labeling	
12.1	Information to be supplied with each pair of sunglasses	#2 (Note 3)
12.2	Additional information	#3

Abbreviation: P = Pass; NA = Not Applicable

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Test data:

5.2 Transmittance and filter categories

Range	Left ocular (%)	Right ocular (%)	Filter category
380 - 780nm (Tv)	16.33	16.96	3

Range	Maximum transmittance (%)		Limit (%)	
	Left ocular	Right ocular	Left	Right
280 - 315nm (T_{SUVB})	< 0.10	< 0.10	≤ 1.0	≤ 1.0
315 - 380nm (T_{SUVA})	< 0.10	< 0.10	≤ 0.5Tv (8.16)	≤ 0.5Tv (8.48)

Requirement:

Consumer label	Technical label	Requirements		
Descriptive label	Filter category	Ultraviolet spectral range		Visible spectral range
		Maximum value of solar UV-B transmittance T_{SUVB} 280 nm to 315 nm	Maximum value of solar UV-A transmittance T_{SUVA} 315 nm to 380 nm	Range of luminous transmittance (Tv) 380 nm to 780 nm
Light tint sunglasses	0	0.05 Tv	Tv	Tv > 80%
	1	0.05 Tv	Tv	43% < Tv ≤ 80%
General purpose sunglasses	2	1.0% absolute or 0.05 Tv, whichever is greater	0.5 Tv	18% < Tv ≤ 43%
	3	1.0% absolute	0.5 Tv	8% < Tv ≤ 18%
Very dark special purpose sunglasses	4	1.0% absolute	1.0% absolute or 0.25 Tv, whichever is greater	3% < Tv ≤ 8%

5.3.1 Uniformity of luminous transmittance

Uniformity	Left ocular	Right ocular	Limit (%)
% variation within filter [relative to higher value]- after correction	7.97	5.92	≤ 10
% difference between filters [relative to lighter filter]	3.73		≤ 15

Note: The above correction was based on Annex L of ISO 12311 - method to correct transmittance for variations in thickness of the filter, with the input of refractive index provided by supplier/ manufacturer.

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5.3.2.1a Spectral transmittance

Range	Minimum transmittance (%)		Limit (%)	
	Left ocular	Right ocular	Left ocular	Right ocular
475 - 650nm	13.79	15.33	≥ 0.2 Tv (3.27)	≥ 0.2 Tv (3.39)

5.3.2.1b Detection of signal lights

Signal light	Relative visual attenuation quotient, Q		Limit
	Left ocular	Right ocular	
Red	1.16	1.15	≥ 0.80
Yellow	1.04	1.03	≥ 0.60
Blue	0.97	0.98	≥ 0.60
Green	0.99	0.99	≥ 0.60

5.3.3 Wide angle scattering

Wide angle scattering (%)	Left ocular	Right ocular	Requirement
	0.6	0.6	≤ 3

6.1 Optical power of oculars mounted in spectacles

Optical power	Left ocular	Right ocular	Limit
Spherical power (m^{-1})	-0.06	-0.07	± 0.12
Astigmatic power (m^{-1})	0.03	0.02	≤ 0.12
Difference of spherical power between left and right filters (m^{-1})	0.01		≤ 0.18

6.3 Prism imbalance (relative prism error)

Prismatic power difference (cm/m)			Limit (cm/m)
Horizontal	Base out	0.225	≤ 1.00
	Base in	- -	≤ 0.25
Vertical		0.025	≤ 0.25

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8 Resistance to radiation

(a) Relative change in the luminous transmittance after irradiation

Left ocular (%)	+0.64	Requirement ± 3% for category 0 ± 5% for category 1 ± 8% for category 2 ± 10% for categories 3 & 4
Right ocular (%)	+0.81	

(b) Wide angle scattering after solar radiation

Left ocular (%)	Right ocular(%)	Requirement (%)
0.8	0.8	≤ 3

(c) After the solar radiation process, the submitted sample also met the requirement for the ultraviolet spectral range for Tv as given by table 1 of the standard.

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Remarks:

#1 - The applicant shall provide that the following warning will be printed on the labels, packaging,etc that accompanies the sunglasses at the point of the sale:
- "Not suitable for driving in twilight or at night" or
- "Not suitable for driving at night or under condition of dull light"

#2 - The manufacturer shall provide information for the user with each pair of sunglasses. This information shall be in the form of markings on the frame or separate information on labels, packaging, etc., that accompanies the sunglasses at the point of sale.

i) Identification of model.
j) Name and address of the manufacturer.
k) Reference to this part of ISO 12312.
l) Type of filter, if photochromic and/or polarizing.
m) Number of the filter category (in both the faded and darkened states for photochromic filters) marked preferably on the frame or on the filter.
n) Description of the filter category in the form of a symbol and/or verbal description as given in Table 5. and and explanation of these symbols. The minimum height of the symbols shall be 5 mm.
o) Restrictions of use, which shall include at least the following:
   1) not for direct observation of the sun;
   2) not for protection against artificial light sources e.g. solaria;
   3) not for use as eye protection against mechanical impact hazards (for products not satisfying the requirements of 7.3 or 7.6);
   4) any other restrictions deemed appropriate to be communicated by the manufacturer, e.g. increased or decreased transmittance of photochromic glasses due to high or low temperatures or to low light conditions.
p) When the filter does not meet the necessary requirements for driving and for filter category 4, the following warning: "Not suitable for driving and road use" in the form of either of the symbols shown in figure 2 of BS EN ISO 12312-1:2013+A1:2015 and/or in writing. The minimum height of the symbol shall be 5 mm.
k) If relevant, instructions for care and cleaning if the wrong use of cleaning products might damage the sunglasses and a list of damaging products not suitable for cleaning.

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#3 - The following information shall be available from the manufacturer on request.

h) An explanation of the trademarks that are not universally recognized or foreseen by the users of this part of ISO 12312.
i) The position of the reference point when different from the one defined in this part of ISO 12312.
j) The country of origin (e.g. "made in .. .. ").
k) The nominal value of luminous transmittance.
l) Transmission requirements applicable to this product.
m) Polarization efficiency in cases of polarizing filters.
n) The base material of filters and frame.

∞ - Decision rule required by the standard

If the measurement result plus or minus the uncertainty of measurement overlap the limit value of the test, the result shall be deemed to be a failure.

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Requirements for Sunglasses (Uniformly Tinted Lenses)

Test standard: BS EN ISO 12312-1:2013+A1:2015 – Eye and face protection – Sunglasses and related eyewear – Part 1: Sunglasses for general use

Test method refers ISO 12311:2013 Personal protective equipment - Test methods for sunglasses and related eyewear.

Number of samples tested: Four (4) pairs (Orange)

Note :

(1) The submitted sunglasses were declared by applicant for adult use.

(2) Physiological compatibility
Note: Sunglasses shall be designed and manufactured in such a way that when used under the conditions and for the purposes intended, they will not compromise the health (and safety) of the wearer. The risks posed by substances leaking from the device that may come into prolonged contact with the skin shall be reduced by the manufacturer to below any regulatory limit. Special attention shall be given to substances which are allergenic, carcinogenic, mutagenic or toxic to reproduction.

(3) CE marking or UKCA marking is not specified in BS EN ISO 12312-1:2013+A1:2015. However, per Regulation (EU) 2016/425 or UK2019 SI696 Schedule 35 Regulation 38, the CE marking or UKCA marking shall be affixed visibly, legibly and indelibly to the sunglasses frame respectively.

It was found that both CE marking and UKCA marking were provided on the sunglasses frame.

Clause	Requirement	Result
4	Construction and materials	
4.1	Construction	P
4.2	Filter material and surface quality	P
4.3	Physiological compatibility	Note (2)
5	Transmittance	
5.2	Transmittance and filter categories	P
5.3	General transmittance requirements	
5.3.1	Uniformity of luminous transmittance	P
5.3.2.1a	Spectral transmittance	P
5.3.2.1b	Detection of signal lights	P
5.3.2.2	Driving in twilight or at night	#1
5.3.3	Wide angle scattering	P
5.3.4	Additional transmittance requirements for specific filter types	
5.3.4.1	Photochromic filters	NA
5.3.4.2	Polarizing filters	NA
5.3.4.3	Gradient filters	NA
5.3.5	Claimed transmittance properties	NA (No claim)
6	Refractive power	

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Clause	Requirement	Result
6.1	Spherical and astigmatic power	P
6.2	Local variations in refractive power	NA
6.3	Prism imbalance (relative prism error)	P
7	Robustness	
7.1	Minimum robustness of filters	P
7.2	Frame deformation and retention of filters	P
7.3	Impact resistance of the filter, strength level 1 (optional specification)	NA (No claim)
7.4	Increased endurance of sunglasses (optional specification)	NA (No claim)
7.5	Resistance to perspiration (optional specification)	NA (No claim)
7.6	Impact resistance of the filter, strength level 2 or 3 (optional specification)	NA (No claim)
8	Resistance to solar radiation	P
9	Resistance to ignition	P
10	Resistance to abrasion (optional specification)	NA (No claim)
11	Protective requirements	
11.1	Coverage area	P
11.2	Temporal protective requirements	NA
12	Information and labeling	
12.1	Information to be supplied with each pair of sunglasses	#2 (Note 3)
12.2	Additional information	#3

Abbreviation: P = Pass; NA = Not Applicable

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Test data:

5.2 Transmittance and filter categories

Range	Left ocular (%)	Right ocular (%)	Filter category
380 - 780nm (Tv)	18.22	18.59	3 (see note #)

Note :
- Luminous transmittance of the right and left lens measured and fell within the overlapping zone (+/-2%) between the filter categories 2 & 3 in the standard. The applicant declared and labelled the submitted sample as filter category 3 sunglasses which is deemed acceptable.

Range	Maximum transmittance (%)		Limit (%)	
	Left ocular	Right ocular	Left	Right
280 - 315nm (T_{SUVB})	< 0.10	< 0.10	≤ 1.0	≤ 1.0
315 - 380nm (T_{SUVA})	< 0.10	< 0.10	≤ 0.5Tv (9.11)	≤ 0.5Tv (9.29)

Requirement:

Consumer label	Technical label	Requirements		
Descriptive label	Filter category	Ultraviolet spectral range		Visible spectral range
		Maximum value of solar UV-B transmittance T_{SUVB} 280 nm to 315 nm	Maximum value of solar UV-A transmittance T_{SUVA} 315 nm to 380 nm	Range of luminous transmittance (Tv) 380 nm to 780 nm
Light tint sunglasses	0	0.05 Tv	Tv	Tv > 80%
	1	0.05 Tv	Tv	43% < Tv ≤ 80%
General purpose sunglasses	2	1.0% absolute or 0.05 Tv, whichever is greater	0.5 Tv	18% < Tv ≤ 43%
	3	1.0% absolute	0.5 Tv	8% < Tv ≤ 18%
Very dark special purpose sunglasses	4	1.0% absolute	1.0% absolute or 0.25 Tv, whichever is greater	3% < Tv ≤ 8%

5.3.1 Uniformity of luminous transmittance

Uniformity	Left ocular	Right ocular	Limit (%)
% variation within filter [relative to higher value]	6.41	6.78	≤ 10
% difference between filters [relative to lighter filter]	1.97		≤ 15

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5.3.2.1a Spectral transmittance

Range	Minimum transmittance (%)		Limit (%)	
	Left ocular	Right ocular	Left ocular	Right ocular
475 - 650nm	15.04	15.15	≥ 0.2 Tv (3.64)	≥ 0.2 Tv (3.72)

5.3.2.1b Detection of signal lights

Signal light	Relative visual attenuation quotient, Q		Limit
	Left ocular	Right ocular	
Red	0.89	0.89	≥ 0.80
Yellow	0.94	0.94	≥ 0.60
Blue	1.03	1.05	≥ 0.60
Green	1.06	1.06	≥ 0.60

5.3.3 Wide angle scattering

Wide angle scattering (%)	Left ocular	Right ocular	Requirement
	0.7	0.8	≤ 3

6.1 Optical power of oculars mounted in spectacles

Optical power	Left ocular	Right ocular	Limit
Spherical power (m^{-1})	-0.07	-0.11	± 0.12
Astigmatic power (m^{-1})	0	0.04	≤ 0.12
Difference of spherical power between left and right filters (m^{-1})	0.04		≤ 0.18

6.3 Prism imbalance (relative prism error)

Prismatic power difference (cm/m)			Limit (cm/m)
Horizontal	Base out	0.375	≤ 1.00
	Base in	- -	≤ 0.25
Vertical		0.075	≤ 0.25

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8 Resistance to radiation

(a) Relative change in the luminous transmittance after irradiation

Left ocular (%)	+0.42	Requirement ± 3% for category 0 ± 5% for category 1 ± 8% for category 2 ± 10% for categories 3 & 4
Right ocular (%)	-0.24	

(b) Wide angle scattering after solar radiation

Left ocular (%)	Right ocular(%)	Requirement (%)
0.8	0.8	≤ 3

(c) After the solar radiation process, the submitted sample also met the requirement for the ultraviolet spectral range for Tv as given by table 1 of the standard.

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Remarks:

#1 - The applicant shall provide that the following warning will be printed on the labels, packaging,etc that accompanies the sunglasses at the point of the sale:
- "Not suitable for driving in twilight or at night" or
- "Not suitable for driving at night or under condition of dull light"

#2 - The manufacturer shall provide information for the user with each pair of sunglasses. This information shall be in the form of markings on the frame or separate information on labels, packaging, etc., that accompanies the sunglasses at the point of sale.

q) Identification of model.
r) Name and address of the manufacturer.
s) Reference to this part of ISO 12312.
t) Type of filter, if photochromic and/or polarizing.
u) Number of the filter category (in both the faded and darkened states for photochromic filters) marked preferably on the frame or on the filter.
v) Description of the filter category in the form of a symbol and/or verbal description as given in Table 5. and and explanation of these symbols. The minimum height of the symbols shall be 5 mm.
w) Restrictions of use, which shall include at least the following:
   1) not for direct observation of the sun;
   2) not for protection against artificial light sources e.g. solaria;
   3) not for use as eye protection against mechanical impact hazards (for products not satisfying the requirements of 7.3 or 7.6);
   4) any other restrictions deemed appropriate to be communicated by the manufacturer, e.g. increased or decreased transmittance of photochromic glasses due to high or low temperatures or to low light conditions.
x) When the filter does not meet the necessary requirements for driving and for filter category 4, the following warning: "Not suitable for driving and road use" in the form of either of the symbols shown in figure 2 of BS EN ISO 12312-1:2013+A1:2015 and/or in writing. The minimum height of the symbol shall be 5 mm.
l) If relevant, instructions for care and cleaning if the wrong use of cleaning products might damage the sunglasses and a list of damaging products not suitable for cleaning.

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#3 - The following information shall be available from the manufacturer on request.

o) An explanation of the trademarks that are not universally recognized or foreseen by the users of this part of ISO 12312.
p) The position of the reference point when different from the one defined in this part of ISO 12312.
q) The country of origin (e.g. "made in .. .. ").
r) The nominal value of luminous transmittance.
s) Transmission requirements applicable to this product.
t) Polarization efficiency in cases of polarizing filters.
u) The base material of filters and frame.

∞ - Decision rule required by the standard

If the measurement result plus or minus the uncertainty of measurement overlap the limit value of the test, the result shall be deemed to be a failure.

Date sample received : Oct 29, 2024
Testing period : Oct 29, 2024 to Nov 18, 2024

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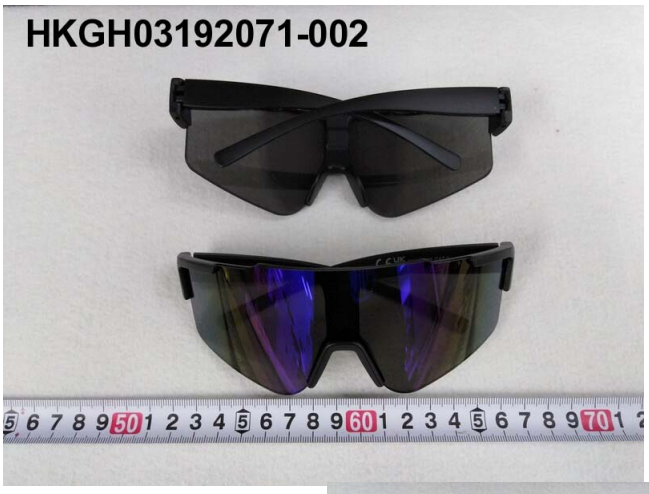

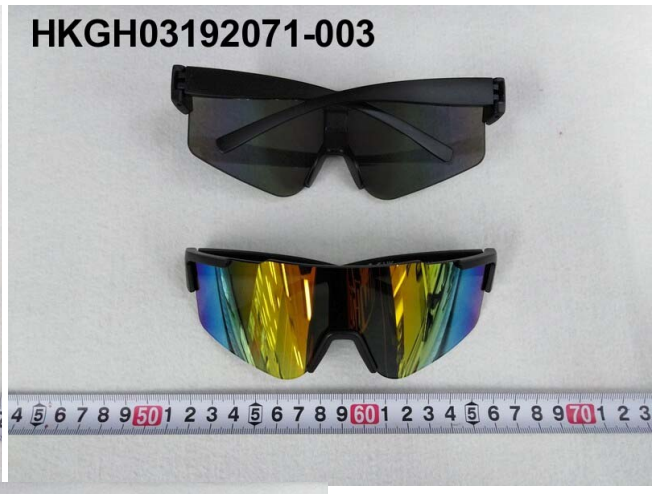

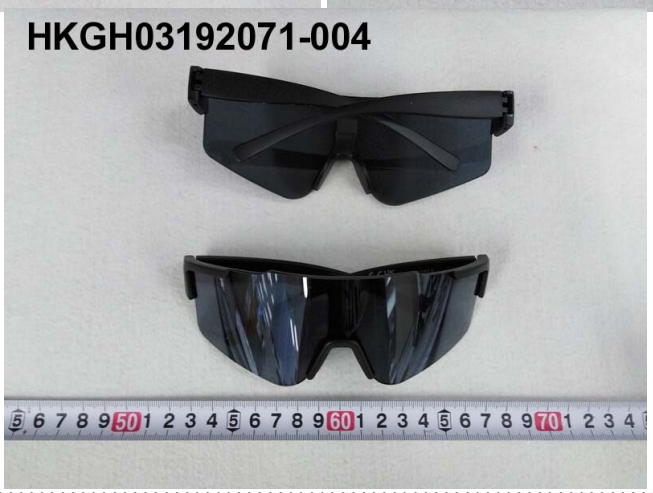

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End of report

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To:	MID OCEAN BRANDS B.V.	Ref:	FC-2024-8326
Attention:	DEREK HUI / EMMA LAM	Date:	Nov 20, 2024

Re : Report Revision Notification

Intertek Testing Services Report Number HKGH03192071 Dated Nov 19, 2024

Please be informed that all the content recorded in the above captioned report will be void. This captioned report is now superseded by a revised Intertek Testing Services report, HKGH03192071 S1

Thank you for your attention.

For and on behalf of :
Intertek Testing Services HK Ltd.

Dorothy M.Y. Lau
Vice President

TEST REPORT

Applicant: MID OCEAN BRANDS B.V.
7/F KINGS TOWER
111 KING LAM STREET
CHEUNG SHA WAN
KLN
Attn: DEREK HUI / EMMA LAM

Number: HKGH0319207102

Date: Dec 03, 2024

Sample and Information provided by customer	:	
Item Name	:	**MO2544 Sports sunglasses with mirror lenses and black frame**
Item No.	:	**MO2544**
Quantity	:	5 pairs each
Vendor	:	115663
Country of Origin	:	China

****

For and on behalf of :
Intertek Testing Services HK Ltd.

Dorothy M.Y. Lau
Vice President

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TEST REPORT

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Conclusion:
The submitted sample was tested under the following requirements requested by the applicant, subject to the information stated in the remark and attached page(s) for details :

	Requirement	Result
(1)	BS ISO 12312-3:2022 Eye and face protection – Sunglasses and related eyewear – Part 3: Sunglasses for running, cycling and similar active lifestyles, excluding: - Clause 4 - Physiological compatibility - Clause 13.2 - Additional information	Pass
(2)	BS ISO 12312-3:2022 Eye and face protection – Sunglasses and related eyewear – Part 3: Sunglasses for running, cycling and similar active lifestyles, excluding: - Clause 4 - Physiological compatibility - Clause 13.2 - Additional information	Pass
(3)	BS ISO 12312-3:2022 Eye and face protection – Sunglasses and related eyewear – Part 3: Sunglasses for running, cycling and similar active lifestyles, excluding: - Clause 4 - Physiological compatibility - Clause 13.2 - Additional information	Pass

****

Decision Rule(s):
When a statement of conformity to a specification or standard is provided on test report, the decision rule shall be applied. For details, please refer to Intertek's "Decision Rule Document" and is available on Intertek's website. https://intertekhk.grd.by/decision-rule-doc..
If decision rule already inhered in the requested specification or standard, Intertek's "Decision Rule Document" is not applicable and indication of "∞" was shown as above table.

****

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TEST REPORT

Number : HKGH0319207102

(1) Requirements for Sunglasses (Uniformly Tinted Lenses)

Test standard: BS ISO 12312-3:2022 – Eye and face protection – Sunglasses and related eyewear – Part 3: Sunglasses for running, cycling and similar active lifestyles

Number of samples tested: Six (6) pairs (Black)

Note :
(1) The submitted sunglasses were declared by applicant for adult use.
(2) Physiological compatibility
Note: Sunglasses shall be designed and manufactured in such a way that when used under the conditions and for the purposes intended, they will not compromise the health (and safety) of the wearer. The risks posed by substances leaking from the device that may come into prolonged contact with the skin shall be reduced by the manufacturer to below any regulatory limit. Special attention shall be given to substances which are allergenic, carcinogenic, mutagenic or toxic to reproduction.
(3) CE marking or UKCA marking is not specified in ISO 12312-3:2022. However, per Regulation (EU) 2016/425 or UK2019 SI696 Schedule 35 Regulation 38, the CE marking or UKCA marking shall be affixed visibly, legibly and indelibly to the sunglasses frame respectively.

It was found that both CE marking and UKCA marking were provided on the sunglasses frame.

Clause	Corresponding clause in ISO 12312-1:2022 (unless otherwise specified)	Requirement	Result
4	4	Construction and materials	
	4.1	Construction	P
	4.2	Filter material and surface quality	P
	4.3	Physiological compatibility	Note (2)
	4.4	Headforms	#1
5	5	Transmittance	
	5.2	Transmittance and filter categories	P
	5.3	General transmittance requirements	
	5.3.1	Uniformity of luminous transmittance	P
	5.3.2	Requirements for road use and driving	
	5.3.2.1	General	P
	5.3.2.1a	Spectral transmittance	P
	5.3.2.1b	Detection of signal lights	P
	5.3.2.2	Road use (including driving) in twilight or at night	P
	5.3.3	Wide angle scatter	P
	5.3.4	Additional transmittance requirements for specific filter types	
	5.3.4.1	Photochromic filters	NA

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Clause	Corresponding clause in ISO 12312-1:2022 (unless otherwise specified)	Requirement	Result
	5.3.4.2	Polarizing filters	NA
	5.3.4.3	Gradient-tinted filters	NA
	5.3.4.4	Electro-optical sunglare filter; electro-optical sunglass filter	NA
	5.3.5	Claimed transmittance properties	NA (No claim)
6	6	Refractive power	
	6.1	Spherical and astigmatic power	P
	6.2	Spatial deviation	NA
	6.3	Prism imbalance (relative prism error)	P
7	--	Robustness	
7.1	7.2	Frame deformation and retention of filters	P
7.2	7.4	Increased endurance of sunglasses	P
7.3	7.5	Resistance to perspiration	P
7.4	7.6	Increased robustness of the sunglass, strength level 2	P
7.5		Impact resistance of the filter, strength level 3 (optional requirement)	NA (No claim)
8	8	Resistance to solar radiation	P
9	9	Resistance to ignition	P
10	10	Resistance to abrasion (optional requirement)	NA (No claim)
11	ISO 18526-3:2020 / 6.11	Resistance of fogging (optional requirement)	NA (No claim)
12	--	Protective requirements	
12.1	--	Field of view and coverage area	P
12.2	11.2	Temporal protective requirements	NA
13	--	Information and labelling	
13.1	--	Information to be supplied with each pair of sunglasses	P (Note 3)
13.2	--	Additional information	#2

Abbreviation: P = Pass; NA = Not Applicable

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TEST REPORT

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Test data:

5.2 Transmittance and filter categories

Range	Left ocular (%)	Right ocular (%)	Filter category
380 - 780nm ($T_{v\ D65}$)	11.28	12.07	3

Range	Maximum transmittance (%)		Limit (%)	
	Left ocular	Right ocular	Left	Right
280 - 315nm (T_{SUVB})	< 0.10	< 0.10	≤ 1.0	≤ 1.0
315 - 380nm (T_{SUVA})	< 0.10	< 0.10	≤ $0.5T_{v\ D65}$ (5.64)	≤ $0.5T_{v\ D65}$ (6.04)

Requirement:

Consumer label	Technical label	Requirements		
Descriptive label	Filter category	Ultraviolet spectral range		Visible spectral range
		Maximum value of solar UV-B transmittance T_{SUVB} 280 nm to 315 nm	Maximum value of solar UV-A transmittance T_{SUVA} 315 nm to 380 nm	Range of luminous transmittance ($T_{v\ D65}$) 380 nm to 780 nm
Very limited reduction of sunglare	0	0.05 $T_{v\ D65}$	$T_{v\ D65}$	$T_{v\ D65}$ > 80%
Limited protection from sunglare	1	0.05 $T_{v\ D65}$	$T_{v\ D65}$	43% < $T_{v\ D65}$ ≤ 80%
Good protection against sunglare	2	1.0% absolute or 0.05 $T_{v\ D65}$, whichever is greater	0.5 $T_{v\ D65}$	18% < $T_{v\ D65}$ ≤ 43%
High protection against sunglare	3	1.0% absolute	0.5 $T_{v\ D65}$	8% < $T_{v\ D65}$ ≤ 18%
Very high protection against extreme sunglare, eg. at sea, over snowfields, on high mountain, or in desert	4	1.0% absolute	1.0% absolute or 0.25 $T_{v\ D65}$, whichever is greater	3% < $T_{v\ D65}$ ≤ 8%

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5.3.1 Uniformity of luminous transmittance

Uniformity	Left ocular	Right ocular	Limit (%)
% variation within filter [relative to higher value]- after correction	8.72	7.19	≤ 15
% difference between filters [relative to lighter filter]	6.56		≤ 15

Note: The above correction was based on clause 7.4.1.4 of ISO 18526-2:2020 - method to correct transmittance for variations in thickness of the filter, with the input of refractive index provided by supplier/ manufacturer.

5.3.2.1a Spectral transmittance

Range	Minimum transmittance (%)		Limit (%)	
	Left ocular	Right ocular	Left ocular	Right ocular
475 - 650nm	8.76	9.05	≥ 0.2 $T_{v\ D65}$ (2.26)	≥ 0.2 $T_{v\ D65}$ (2.41)

5.3.2.1b Detection of signal lights

Signal light	Relative visual attenuation quotient, Q		Limit
	Left ocular	Right ocular	
Red	1.03	1.03	≥ 0.80
Yellow	0.94	0.94	≥ 0.60
Blue	1.20	1.19	≥ 0.60
Green	1.03	1.03	≥ 0.60

5.3.3 Wide angle scatter

Wide angle scattering (%)	Left ocular	Right ocular	Requirement
	0.6	0.6	≤ 3

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6.1 Spherical and astigmatic power

Optical power	Left ocular	Right ocular	Limit
Spherical power (m^{-1})	-0.09	-0.09	± 0.12
Astigmatic power (m^{-1})	0.01	0	≤ 0.12
Difference of spherical power between left and right filters (m^{-1})	0		≤ 0.18

6.3 Prism imbalance (relative prism error)

Prismatic power difference (cm/m)			Limit (cm/m)
Horizontal	Base out	0.275	≤ 1.00
	Base in	- -	≤ 0.25
Vertical		0.025	≤ 0.25

8 Resistance to solar radiation

(a) Relative change in the luminous transmittance after irradiation

Left ocular (%)	+0.87	Requirement ± 3% for category 0 ± 5% for category 1 ± 8% for category 2 ± 10% for categories 3 & 4
Right ocular (%)	+6.01	

(b) Wide angle scatter after solar radiation

Left ocular (%)	Right ocular(%)	Requirement (%)
0.5	0.6	≤ 3

(c) After the solar radiation process, the submitted sample also met the requirement for the ultraviolet spectral range for $T_{v\ D65}$ as given by table 1 of the standard.

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Remarks:

#1 - As per client request, 1-M headform was used for test.

#2 - The following information shall be available from the manufacturer on request.

a) An explanation of the trademarks that are not universally recognized or foreseen by the users of this document.
b) The position of the reference point when different from the one defined in this document;
c) The country of origin (e.g. "made in ");
d) The nominal value of luminous transmittance;
e) Transmission requirements applicable to this product;
f) Polarizing efficiency in cases of polarizing filters;
g) The base material of filters and frame.

NOTE - In some countries, the country of origin can be mandatory.

∞ - Decision rule required by the standard
If the measurement result plus or minus the uncertainty of measurement overlap the limit value of the test, the result shall be deemed to be a failure.

Date sample received : Nov 26, 2024
Testing period : Nov 26, 2024 to Dec 02, 2024

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TEST REPORT

Number : HKGH0319207102

(2) Requirements for Sunglasses (Uniformly Tinted Lenses)

Test standard: BS ISO 12312-3:2022 – Eye and face protection – Sunglasses and related eyewear – Part 3: Sunglasses for running, cycling and similar active lifestyles

Number of samples tested: Six (6) pairs (Purple)

Note :
(1) The submitted sunglasses were declared by applicant for adult use.
(2) Physiological compatibility
Note: Sunglasses shall be designed and manufactured in such a way that when used under the conditions and for the purposes intended, they will not compromise the health (and safety) of the wearer. The risks posed by substances leaking from the device that may come into prolonged contact with the skin shall be reduced by the manufacturer to below any regulatory limit. Special attention shall be given to substances which are allergenic, carcinogenic, mutagenic or toxic to reproduction.
(3) CE marking or UKCA marking is not specified in ISO 12312-3:2022. However, per Regulation (EU) 2016/425 or UK2019 SI696 Schedule 35 Regulation 38, the CE marking or UKCA marking shall be affixed visibly, legibly and indelibly to the sunglasses frame respectively.

It was found that both CE marking and UKCA marking were provided on the sunglasses frame.

Clause	Corresponding clause in ISO 12312-1:2022 (unless otherwise specified)	Requirement	Result
4	4	Construction and materials	
	4.1	Construction	P
	4.2	Filter material and surface quality	P
	4.3	Physiological compatibility	Note (2)
	4.4	Headforms	#1
5	5	Transmittance	
	5.2	Transmittance and filter categories	P
	5.3	General transmittance requirements	
	5.3.1	Uniformity of luminous transmittance	P
	5.3.2	Requirements for road use and driving	
	5.3.2.1	General	P
	5.3.2.1a	Spectral transmittance	P
	5.3.2.1b	Detection of signal lights	P
	5.3.2.2	Road use (including driving) in twilight or at night	P
	5.3.3	Wide angle scatter	P
	5.3.4	Additional transmittance requirements for specific filter types	
	5.3.4.1	Photochromic filters	NA

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Clause	Corresponding clause in ISO 12312-1:2022 (unless otherwise specified)	Requirement	Result
	5.3.4.2	Polarizing filters	NA
	5.3.4.3	Gradient-tinted filters	NA
	5.3.4.4	Electro-optical sunglare filter; electro-optical sunglass filter	NA
	5.3.5	Claimed transmittance properties	NA (No claim)
6	6	Refractive power	
	6.1	Spherical and astigmatic power	P
	6.2	Spatial deviation	NA
	6.3	Prism imbalance (relative prism error)	P
7	--	Robustness	
7.1	7.2	Frame deformation and retention of filters	P
7.2	7.4	Increased endurance of sunglasses	P
7.3	7.5	Resistance to perspiration	P
7.4	7.6	Increased robustness of the sunglass, strength level 2	P
7.5		Impact resistance of the filter, strength level 3 (optional requirement)	NA (No claim)
8	8	Resistance to solar radiation	P
9	9	Resistance to ignition	P
10	10	Resistance to abrasion (optional requirement)	NA (No claim)
11	ISO 18526-3:2020 / 6.11	Resistance of fogging (optional requirement)	NA (No claim)
12	--	Protective requirements	
12.1	--	Field of view and coverage area	P
12.2	11.2	Temporal protective requirements	NA
13	--	Information and labelling	
13.1	--	Information to be supplied with each pair of sunglasses	P (Note 3)
13.2	--	Additional information	#2

Abbreviation: P = Pass; NA = Not Applicable

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Test data:

5.2 Transmittance and filter categories

Range	Left ocular (%)	Right ocular (%)	Filter category
380 - 780nm ($T_{v\ D65}$)	17.75	17.45	3

Range	Maximum transmittance (%)		Limit (%)	
	Left ocular	Right ocular	Left	Right
280 - 315nm (T_{SUVB})	< 0.10	< 0.10	≤ 1.0	≤ 1.0
315 - 380nm (T_{SUVA})	< 0.10	< 0.10	≤ $0.5T_{v\ D65}$ (8.87)	≤ $0.5T_{v\ D65}$ (8.73)

Requirement:

Consumer label	Technical label	Requirements		
Descriptive label	Filter category	Ultraviolet spectral range		Visible spectral range
		Maximum value of solar UV-B transmittance T_{SUVB} 280 nm to 315 nm	Maximum value of solar UV-A transmittance T_{SUVA} 315 nm to 380 nm	Range of luminous transmittance ($T_{v\ D65}$) 380 nm to 780 nm
Very limited reduction of sunglare	0	0.05 $T_{v\ D65}$	$T_{v\ D65}$	$T_{v\ D65}$ > 80%
Limited protection from sunglare	1	0.05 $T_{v\ D65}$	$T_{v\ D65}$	43% < $T_{v\ D65}$ ≤ 80%
Good protection against sunglare	2	1.0% absolute or 0.05 $T_{v\ D65}$, whichever is greater	0.5 $T_{v\ D65}$	18% < $T_{v\ D65}$ ≤ 43%
High protection against sunglare	3	1.0% absolute	0.5 $T_{v\ D65}$	8% < $T_{v\ D65}$ ≤ 18%
Very high protection against extreme sunglare, eg. at sea, over snowfields, on high mountain, or in desert	4	1.0% absolute	1.0% absolute or 0.25 $T_{v\ D65}$, whichever is greater	3% < $T_{v\ D65}$ ≤ 8%

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5.3.1 Uniformity of luminous transmittance

Uniformity	Left ocular	Right ocular	Limit (%)
% variation within filter [relative to higher value]- after correction	6.79	6.28	≤ 15
% difference between filters [relative to lighter filter]	1.66		≤ 15

Note: The above correction was based on clause 7.4.1.4 of ISO 18526-2:2020 - method to correct transmittance for variations in thickness of the filter, with the input of refractive index provided by supplier/ manufacturer.

5.3.2.1a Spectral transmittance

Range	Minimum transmittance (%)		Limit (%)	
	Left ocular	Right ocular	Left ocular	Right ocular
475 - 650nm	15.62	14.84	≥ 0.2 $T_{v\ D65}$ (3.55)	≥ 0.2 $T_{v\ D65}$ (3.49)

5.3.2.1b Detection of signal lights

Signal light	Relative visual attenuation quotient, Q		Limit
	Left ocular	Right ocular	
Red	1.16	1.16	≥ 0.80
Yellow	1.04	1.04	≥ 0.60
Blue	0.97	0.97	≥ 0.60
Green	0.99	0.99	≥ 0.60

5.3.3 Wide angle scatter

Wide angle scattering (%)	Left ocular	Right ocular	Requirement
	0.6	0.6	≤ 3

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6.1 Spherical and astigmatic power

Optical power	Left ocular	Right ocular	Limit
Spherical power (m^{-1})	-0.09	-0.12	± 0.12
Astigmatic power (m^{-1})	0.01	0.04	≤ 0.12
Difference of spherical power between left and right filters (m^{-1})	0.03		≤ 0.18

6.3 Prism imbalance (relative prism error)

Prismatic power difference (cm/m)			Limit (cm/m)
Horizontal	Base out	0.375	≤ 1.00
	Base in	- -	≤ 0.25
Vertical		0.075	≤ 0.25

8 Resistance to solar radiation

(a) Relative change in the luminous transmittance after irradiation

Left ocular (%)	+1.14	Requirement ± 3% for category 0 ± 5% for category 1 ± 8% for category 2 ± 10% for categories 3 & 4
Right ocular (%)	+1.14	

(b) Wide angle scatter after solar radiation

Left ocular (%)	Right ocular(%)	Requirement (%)
0.6	0.6	≤ 3

(c) After the solar radiation process, the submitted sample also met the requirement for the ultraviolet spectral range for $T_{v\ D65}$ as given by table 1 of the standard.

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Remarks:

#1 - As per client request, 1-M headform was used for test.

#2 - The following information shall be available from the manufacturer on request.

a) An explanation of the trademarks that are not universally recognized or foreseen by the users of this document.
b) The position of the reference point when different from the one defined in this document;
c) The country of origin (e.g. "made in ");
d) The nominal value of luminous transmittance;
e) Transmission requirements applicable to this product;
f) Polarizing efficiency in cases of polarizing filters;
g) The base material of filters and frame.

NOTE - In some countries, the country of origin can be mandatory.

∞ - Decision rule required by the standard
If the measurement result plus or minus the uncertainty of measurement overlap the limit value of the test, the result shall be deemed to be a failure.

Date sample received : Nov 26, 2024
Testing period : Nov 26, 2024 to Dec 02, 2024

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(3) Requirements for Sunglasses (Uniformly Tinted Lenses)

Test standard: BS ISO 12312-3:2022 – Eye and face protection – Sunglasses and related eyewear – Part 3: Sunglasses for running, cycling and similar active lifestyles

Number of samples tested: Six (6) pairs (Orange)

Note :
(1) The submitted sunglasses were declared by applicant for adult use.
(2) Physiological compatibility
Note: Sunglasses shall be designed and manufactured in such a way that when used under the conditions and for the purposes intended, they will not compromise the health (and safety) of the wearer. The risks posed by substances leaking from the device that may come into prolonged contact with the skin shall be reduced by the manufacturer to below any regulatory limit. Special attention shall be given to substances which are allergenic, carcinogenic, mutagenic or toxic to reproduction.
(3) CE marking or UKCA marking is not specified in ISO 12312-3:2022. However, per Regulation (EU) 2016/425 or UK2019 SI696 Schedule 35 Regulation 38, the CE marking or UKCA marking shall be affixed visibly, legibly and indelibly to the sunglasses frame respectively.

It was found that both CE marking and UKCA marking were provided on the sunglasses frame.

Clause	Corresponding clause in ISO 12312-1:2022 (unless otherwise specified)	Requirement	Result
4	4	Construction and materials	
	4.1	Construction	P
	4.2	Filter material and surface quality	P
	4.3	Physiological compatibility	Note (2)
	4.4	Headforms	#1
5	5	Transmittance	
	5.2	Transmittance and filter categories	P
	5.3	General transmittance requirements	
	5.3.1	Uniformity of luminous transmittance	P
	5.3.2	Requirements for road use and driving	
	5.3.2.1	General	P
	5.3.2.1a	Spectral transmittance	P
	5.3.2.1b	Detection of signal lights	P
	5.3.2.2	Road use (including driving) in twilight or at night	P
	5.3.3	Wide angle scatter	P
	5.3.4	Additional transmittance requirements for specific filter types	
	5.3.4.1	Photochromic filters	NA

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Clause	Corresponding clause in ISO 12312-1:2022 (unless otherwise specified)	Requirement	Result
	5.3.4.2	Polarizing filters	NA
	5.3.4.3	Gradient-tinted filters	NA
	5.3.4.4	Electro-optical sunglare filter; electro-optical sunglass filter	NA
	5.3.5	Claimed transmittance properties	NA (No claim)
6	6	Refractive power	
	6.1	Spherical and astigmatic power	P
	6.2	Spatial deviation	NA
	6.3	Prism imbalance (relative prism error)	P
7	--	Robustness	
7.1	7.2	Frame deformation and retention of filters	P
7.2	7.4	Increased endurance of sunglasses	P
7.3	7.5	Resistance to perspiration	P
7.4	7.6	Increased robustness of the sunglass, strength level 2	P
7.5		Impact resistance of the filter, strength level 3 (optional requirement)	NA (No claim)
8	8	Resistance to solar radiation	P
9	9	Resistance to ignition	P
10	10	Resistance to abrasion (optional requirement)	NA (No claim)
11	ISO 18526-3:2020 / 6.11	Resistance of fogging (optional requirement)	NA (No claim)
12	--	Protective requirements	
12.1	--	Field of view and coverage area	P
12.2	11.2	Temporal protective requirements	NA
13	--	Information and labelling	
13.1	--	Information to be supplied with each pair of sunglasses	P (Note 3)
13.2	--	Additional information	#2

Abbreviation: P = Pass; NA = Not Applicable

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Test data:

5.2 Transmittance and filter categories

Range	Left ocular (%)	Right ocular (%)	Filter category
380 - 780nm ($T_{v\ D65}$)	18.36	18.45	3 (see note #)

Note :
- Luminous transmittance of the right and left lens measured and fell within the overlapping zone (+/-2%) between the filter categories 2 & 3 in the standard. The applicant declared and labelled the submitted sample as filter category 3 sunglasses which is deemed acceptable.

Range	Maximum transmittance (%)		Limit (%)	
	Left ocular	Right ocular	Left	Right
280 - 315nm (T_{SUVB})	< 0.10	< 0.10	≤ 1.0	≤ 1.0
315 - 380nm (T_{SUVA})	< 0.10	< 0.10	≤ $0.5T_{v\ D65}$ (9.18)	≤ $0.5T_{v\ D65}$ (9.23)

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Requirement:

Consumer label	Technical label	Requirements		
Descriptive label	Filter category	Ultraviolet spectral range		Visible spectral range
		Maximum value of solar UV-B transmittance T_{SUVB} 280 nm to 315 nm	Maximum value of solar UV-A transmittance T_{SUVA} 315 nm to 380 nm	Range of luminous transmittance ($T_{v\ D65}$) 380 nm to 780 nm
Very limited reduction of sunglare	0	0.05 $T_{v\ D65}$	$T_{v\ D65}$	$T_{v\ D65} > 80\%$
Limited protection from sunglare	1	0.05 $T_{v\ D65}$	$T_{v\ D65}$	$43\% < T_{v\ D65} \leq 80\%$
Good protection against sunglare	2	1.0% absolute or 0.05 $T_{v\ D65}$, whichever is greater	0.5 $T_{v\ D65}$	$18\% < T_{v\ D65} \leq 43\%$
High protection against sunglare	3	1.0% absolute	0.5 $T_{v\ D65}$	$8\% < T_{v\ D65} \leq 18\%$
Very high protection against extreme sunglare, eg. at sea, over snowfields, on high mountain, or in desert	4	1.0% absolute	1.0% absolute or 0.25 $T_{v\ D65}$, whichever is greater	$3\% < T_{v\ D65} \leq 8\%$

5.3.1 Uniformity of luminous transmittance

Uniformity	Left ocular	Right ocular	Limit (%)
% variation within filter [relative to higher value]- after correction	5.75	5.93	≤ 15
% difference between filters [relative to lighter filter]	0.49		≤ 15

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5.3.2.1a Spectral transmittance

Range	Minimum transmittance (%)		Limit (%)	
	Left ocular	Right ocular	Left ocular	Right ocular
475 - 650nm	14.87	14.85	$\geq$ 0.2 $T_{v\ D65}$ (3.67)	$\geq$ 0.2 $T_{v\ D65}$ (3.69)

5.3.2.1b Detection of signal lights

Signal light	Relative visual attenuation quotient, Q		Limit
	Left ocular	Right ocular	
Red	0.89	0.89	≥ 0.80
Yellow	0.94	0.95	≥ 0.60
Blue	1.05	1.02	≥ 0.60
Green	1.06	1.06	≥ 0.60

5.3.3 Wide angle scatter

Wide angle scattering (%)	Left ocular	Right ocular	Requirement
	0.6	0.6	≤ 3

6.1 Spherical and astigmatic power

Optical power	Left ocular	Right ocular	Limit
Spherical power (m^{-1})	-0.09	-0.12	± 0.12
Astigmatic power (m^{-1})	0	0.02	≤ 0.12
Difference of spherical power between left and right filters (m^{-1})	0.03		≤ 0.18

6.3 Prism imbalance (relative prism error)

Prismatic power difference (cm/m)			Limit (cm/m)
Horizontal	Base out	0.40	≤ 1.00
	Base in	- -	≤ 0.25
Vertical		0.075	≤ 0.25

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8 Resistance to solar radiation

(a) Relative change in the luminous transmittance after irradiation

Left ocular (%)	+1.56	Requirement ± 3% for category 0 ± 5% for category 1 ± 8% for category 2 ± 10% for categories 3 & 4
Right ocular (%)	+1.19	

(b) Wide angle scatter after solar radiation

Left ocular (%)	Right ocular(%)	Requirement (%)
0.6	0.5	≤ 3

(c) After the solar radiation process, the submitted sample also met the requirement for the ultraviolet spectral range for $T_{v\ D65}$ as given by table 1 of the standard.

Remarks:

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g) The base material of filters and frame.

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∞ - Decision rule required by the standard
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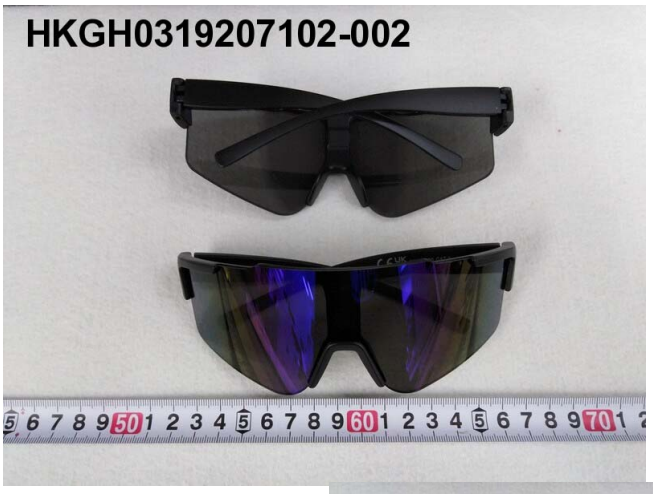

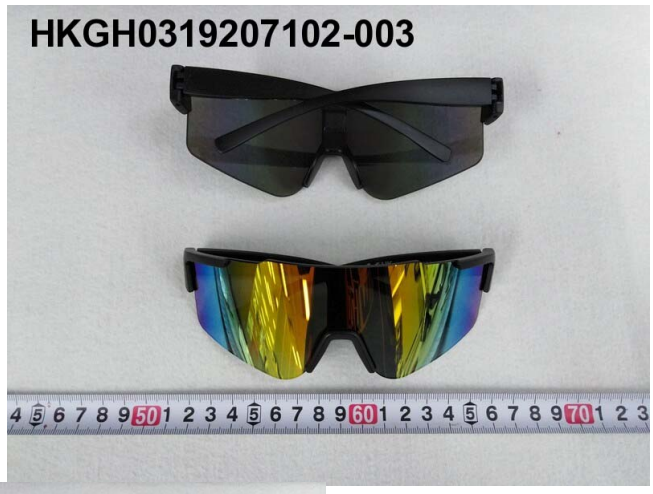

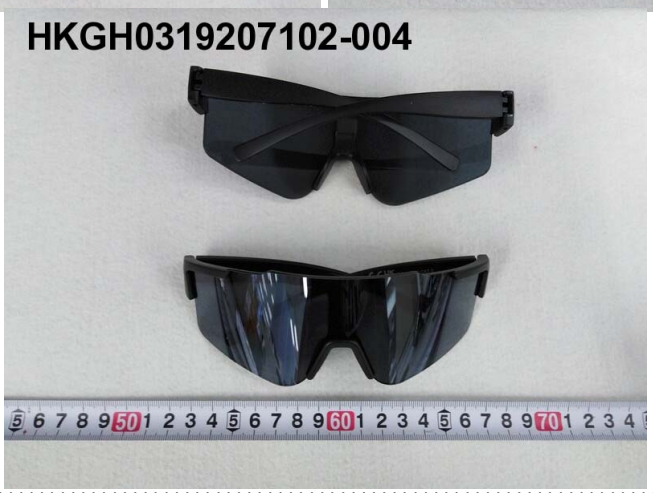

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End of report

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