



Test Report

Number: SHAH01691364

Applicant:

Date: 03 Jun, 2024

Sample Description:

One (1) style of submitted sample said to be

Item Name : Safety glasses

Ref No. : FZ103.

No.of Specimens : 20pcs

Supplier :

Tests Conducted

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

Conclusion:

| <u>Tested sample:</u> | <u>Requirement:</u> | <u>Result:</u> |
|-----------------------|--|----------------|
| Submitted samples | AS/NZS 1337.1: 2010+A1:2012+A2:2018 – Personal eye protection Part 1: Eye and face protectors for occupational applications Excluding: - Clause 2.2.2 – Materials - Clause 3.2.2 – Materials - Clause 3.5 – Marking of assembled eye and face protectors and packaging | Pass |
| | AS/NZS 1067.1:2016 Eye and face protection – Sunglasses and fashion spectacles – Part 1: Requirements (Partial test) - Clause 5.3.5.1.1 - Blue-light absorption - Clause 5.3.5.2.2 - Solar UV absorption - Clause 5.3.5.2.8 - UV400 | Pass |

To be continued

Authorized By:
Intertek Testing Services Ltd. Zhejiang, Wenzhou Branch

Bobo Yao
Assistant General Manager



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Tests Conducted

1 Requirements for Eye and Face Protectors

Test standard: AS/NZS 1337.1: 2010+A1:2012+A2:2018 – Personal eye protection Part 1: Eye and face protectors for occupational applications.

Number of samples tested: Twelve (12) pairs of spectacles.

| Clause | Requirement | Result |
|------------------------------------|--|---------------|
| Section 2 Requirements for oculars | | |
| 2.2 | General requirements for oculars | |
| 2.2.1 | Finish | P |
| 2.2.2 | Materials | #1 |
| 2.2.3 | Dimensions of oculars and visors | P |
| 2.2.4 | Dimensions of oculars and visors for small heads | NA |
| 2.3 | Material requirements | P |
| 2.4 | Optical properties of oculars | |
| 2.4.4 | Transmittance requirements | |
| 2.4.4.1 | General | P |
| 2.4.4.2 | Claims of luminous transmittance | NA (No claim) |
| 2.4.5 | Other transmittance requirements | |
| 2.4.5.1 | Uniformity of luminous transmittance of uniformly tinted filters | NA |
| 2.4.5.2 | Transmittance matching for pairs of filters of all types | NA |
| 2.4.5.3 | Uniformity of colour for pairs of filters of all types | NA |
| 2.4.6 | Special transmittance requirements | |
| 2.4.6.1 | Photochromic filters | NA |
| 2.4.6.2 | Polarizing filters | NA |
| 2.4.6.3 | Gradient filters | NA |
| 2.4.6.4 | Outdoor use, untinted filters | NA (No claim) |
| 2.4.7 | Refractive power of oculars | |
| 2.4.7.1 | Spherical and cylindrical power | P |
| 2.4.7.2 | Local aberrations in spherical and cylindrical power | NA |
| 2.4.7.3 | Prismatic power - individual oculars | P |
| 2.4.7.4 | Prismatic power difference - Pairs of oculars | P |
| 2.4.8 | Scattered light | P |
| 2.4.9 | Material and surface quality | P |
| 2.5 | Low impact resistance | NA |
| 2.6 | Medium impact resistance | NA (No claim) |
| 2.7 | High impact resistance | NA (No claim) |
| 2.8 | Extra high impact resistance | NA (No claim) |
| 2.9 | Penetration resistance | NA |
| 2.10 | Resistance to ignition | NA |
| 2.11 | Special requirements | |
| 2.11.1 | Protection against molten metals | NA (No Claim) |
| 2.11.2 | Protection against hot solids | NA (No Claim) |



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| Clause | Requirement | Result |
|--|--|---------------|
| 2.13 | Marking of oculars and replacement ocular packaging | |
| 2.13.1 | Marking of oculars | NA |
| 2.13.2 | Marking of replacement ocular packaging | NA |
| Section 3 Requirements for assembled eye and face protectors | | |
| 3.2 | General requirements | |
| 3.2.1 | Finish | P |
| 3.2.2 | Materials | #2 |
| 3.2.3 | Optical properties of oculars | P |
| 3.2.4 | Ventilation | NA |
| 3.2.5 | Dimensional requirements for eye-shields and face-shields | NA |
| 3.2.6 | Assessment of lateral protection | NA |
| 3.2.7 | Impact resistance | P |
| 3.2.8 | Penetration resistance | P |
| 3.2.9 | Resistance to ignition | P |
| 3.2.10 | Thermal stability | P |
| 3.2.11 | Protection against corrosion | P |
| 3.3 | Special performance requirements | |
| 3.3.1 | Medium impact resistance | NA (No Claim) |
| 3.3.2 | High impact resistance | NA (No Claim) |
| 3.3.3 | Extra high impact resistance | NA (No Claim) |
| 3.3.4 | Protection against splashes | NA (No Claim) |
| 3.3.5 | Protection against dust | NA (No Claim) |
| 3.3.6 | Protection against gas | NA (No Claim) |
| 3.3.7 | Protection against molten metal and hot solids | NA (No Claim) |
| 3.3.8 | Protection against high temperature | NA (No Claim) |
| 3.5 | Marking of assembled eye and face protectors and packaging | |
| 3.5.1 | Eye and face protectors | #3 |
| 3.5.2 | Packaging | #4 |
| Section 4 Optional tests and claims | | |
| 4.1 | Claimed transmittance properties | NA (No Claim) |
| 4.2 | Flame propagation | NA |
| 5 | Additional requirements for assembled eye protectors for welding and allied operations | NA |

Abbreviation: P = Pass; NA = Not Applicable

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Test data:

2.2.3 Dimensions of oculars and visors

| Nominal size | Left ocular (mm) | Right ocular (mm) | Requirement (mm) |
|--------------|------------------|-------------------|------------------|
| Boxed length | >48 | >48 | ≥ 42 |
| Boxed depth | >40 | >40 | ≥ 32 |

2.3.1 Visual quality

| | |
|--------------|---|
| Requirements | Reasonably free from pits, scratches, greyness, watermarks, bubbles, striae, local aberrations and inclusions which could impair vision or prevent the use of the oculars for their intended purpose. |
| Result | Not found |

2.4.4.1 Transmittance requirements--- General

| Range | Left ocular (%) | Right ocular (%) | Lens category |
|---------------------------|-----------------|------------------|---------------|
| 380 – 780 nm (τ_v) | 89.34 | 88.35 | 0 |

| Range | Maximum transmittance (%) | | Requirement (%) | |
|-------------------------------------|---------------------------|--------------|------------------------------|------------------------------|
| | Left ocular | Right ocular | Left | Right |
| 280 - 315nm | 0.02 | 0.01 | $\leq 0.05 \tau_v$ (4.47) | $\leq 0.05 \tau_v$ (4.34) |
| 315 - 350nm | 0.03 | 0.03 | $\leq \tau_v$ (89.34) | $\leq \tau_v$ (88.35) |
| 315 - 380nm ($\tau_{SUV\lambda}$) | 0.02 | 0.02 | $\leq \tau_v$ (89.34) | $\leq \tau_v$ (88.35) |

Minimum spectral transmittance for wavelengths 470 nm to 650 nm:

| Range | Minimum transmittance (%) | | Requirement (%) | |
|--------------|---------------------------|--------------|------------------------------|------------------------------|
| | Left ocular | Right ocular | Left | Right |
| 470 – 650 nm | 87.83 | 86.78 | $\geq 0.2 \tau_v$ (17.87) | $\geq 0.2 \tau_v$ (17.67) |

For signal light detection (Q):

| Signal light | Relative visual attenuation quotient, Q | | Requirement |
|--------------|---|--------------|-------------|
| | Left ocular | Right ocular | |
| Red | 1.01 | 1.01 | ≥ 0.80 |
| Yellow | 1.00 | 1.00 | ≥ 0.80 |
| Blue | 1.00 | 1.00 | ≥ 0.80 |
| Green | 1.00 | 1.00 | ≥ 0.80 |

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Requirement:

| Ocular category | Visible spectral range | | | | | | | Ultraviolet spectral range | | |
|------------------|---|------|--|--|--------|-------|------|--|-----------------------|---|
| | Range of luminous transmittance (τ_v), % | | Minimum spectral transmittance for wavelengths | Minimum relative visual attenuation for signal light detection (Q) | | | | Maximum value of spectral transmittance ($\tau_{\text{F}}(\lambda)$) | | Maximum value of solar uva transmittance (τ_{SUVa}) |
| | From over | To | 470 nm To 650 nm | Red | Yellow | Green | Blue | 280 nm to 315 nm | Over 315 nm to 350 nm | 315 nm To 380 nm |
| 0 | 80.0 | 100 | 0.20 τ_v | 0.80 | 0.80 | 0.80 | 0.80 | 0.05 τ_v | τ_v | τ_v |
| 1 | 43.0 | 80.0 | | | | | | 0.01 τ_v | 0.50 τ_v | 0.50 τ_v |
| 2 | 18.0 | 43.0 | | | | | | 0.01 τ_v | 0.25 τ_v | 0.25 τ_v |
| 3 | 8.0 | 18.0 | | | | | | | | |
| Outdoor untinted | 80.0 | 100 | | | | | | | | |

2.4.7.1 Spherical and cylindrical power

| Refractive power | Left ocular | Right ocular | Requirement (m^{-1}) |
|-------------------------------|-------------|--------------|--------------------------------|
| Spherical power (m^{-1}) | +0.01 | 0.00 | Spherical power : ± 0.09 |
| Astigmatic power (m^{-1}) | 0.00 | 0.00 | Astigmatic power : ≤ 0.09 |

2.4.7.3 Prismatic power - Individual oculars

| Prismatic power (cm/m) | Left ocular | Right ocular | Requirement (cm/m) ≤ 0.25 |
|------------------------|-------------|--------------|-----------------------------------|
| | < 0.12 | < 0.12 | |

2.4.7.4 Prismatic power difference - Pairs of oculars

| Prismatic power difference (cm/m) | Horizontal | 0.04 | Requirement (cm/m) | | |
|-----------------------------------|------------|------|--------------------|---------|----------------|
| | Vertical | 0.00 | Horizontal limit | | Vertical limit |
| | Base out | | Base out | Base in | |
| | | | 1.00 | 0.25 | 0.25 |

2.4.8 Scattered light (Haze test)

| Scattered light (%) | Left ocular | Right ocular | Requirement: $\leq 3.0\%$ |
|---------------------|-------------|--------------|------------------------------|
| | 0.3 | 0.2 | |

3.2.10 Thermal stability (Optical properties)

Spherical and cylindrical power

| Refractive power | Left ocular | Right ocular | Requirement (m^{-1}) |
|-------------------------------|-------------|--------------|--------------------------------|
| Spherical power (m^{-1}) | -0.01 | +0.01 | Spherical power : ± 0.09 |
| Astigmatic power (m^{-1}) | 0.00 | 0.00 | Astigmatic power : ≤ 0.09 |

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Prismatic power - Individual oculars

| | | | |
|------------------------|-------------|--------------|------------------------------|
| Prismatic power (cm/m) | Left ocular | Right ocular | Requirement (cm/m) ≤ 0.25 |
| | < 0.12 | < 0.12 | |

Prismatic power difference - Pairs of oculars

| | | | | | |
|-----------------------------------|------------|------|--------------------|---------|----------------|
| Prismatic power difference (cm/m) | Horizontal | 0.05 | Requirement (cm/m) | | |
| | Vertical | 0.04 | Horizontal limit | | Vertical limit |
| | Base out | | Base out | Base in | |
| | | | 1.00 | 0.25 | 0.25 |

Abbreviation: ≤ = Less than or equal to
 ≥ = More than or equal to
 < = Less than

Remark:

#1 - Oculars shall be made of organic materials (plastics), inorganic materials (glass), or any suitable combination of these materials.

Oculars shall not include any substance in such quantities or in such a manner that would be hazardous to the health of the wearer when the ocular is subject to normal use and reasonably foreseeable abuse.

NOTE: The purpose of this requirement is to prevent the use of substances with properties not specifically covered by this standard but which would nonetheless be injurious to the health of the wearer.

#2 - Materials used in the construction of eye and face protectors that come into contact with the skin should be non-irritant when subjected to perspiration and should not discolour the skin.

The design of eye and face protectors (in particular, a dust goggle) shall be such as will reduce to a minimum the possibility of skin irritation due to abrasion. Materials of construction which are prone to absorption of moisture shall be readily replaceable.

Where provided, headbands or harnesses shall be of good quality durable materials, and shall have a minimum width of 10mm for a goggle and 5mm for spectacles.

#3 - The following information shall be etched or impressed into the eye and face protectors:

- (a) The manufacturer's name, trade name or mark. This shall not be in a form that is likely to cause confusion with any of the letters or numerals permitted in AS/NZS 1337.1, Table 7 or the 'R' required in AS/NZS 1337.6 to indicate prescription eye protectors.
- (b) The appropriate ocular marking as given in Section 2 of this Standard and, where applicable, the appropriate marking as prescribed in AS/NZS 1338, Part 2 or Part 3.
- (c) The appropriate marking as given in Table 7.

Where the design of the protector is such that the oculars are integral to the frame or front frame, the above information may be etched or impressed into the frame instead.

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#4 - The following information shall be supplied with the eye and face protectors:

- (a) The type of protector as given in Table 7.
- (b) The appropriate marking as given in Table 8.
- (c) Where the protector is intended for a small size head then an indication of this.

The information should be marked on the packaging, however alternative methods such as swing tags or adhesive labels may be used. provided that the required marking is readily visible and secured to the protector as supplied

NOTE: Manufacturers making a statement of compliance with this Australian/New Zealand Standard on a product, packaging, or promotional material related to that product are advised to ensure that such compliance is capable of being verified.

Date sample received: May 16, 2024

Testing period: May 16, 2024 To May 29, 2024

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2 Requirements for Sunglasses (Partial test upon request)

Test standard: AS/NZS 1067.1:2016 Eye and face protection – Sunglasses and fashion spectacles – Part 1: Requirements

Test method: AS/NZS 1067.2:2016 Eye and face protection – Sunglasses and fashion spectacles – Part 2: Test methods

Number of samples tested: Two (2) pairs.

| Clause | Requirement | Result |
|-----------|----------------------------------|--------|
| 5.3.5 | Claimed transmittance properties | |
| 5.3.5.1.1 | Blue-light absorption | P |
| 5.3.5.2.2 | Solar UV absorption | P |
| 5.3.5.2.8 | UV400 | P |

Abbreviation: P = Pass; NA = Not Applicable

Test data:

5.3.5.1.1 Blue-light absorption

| Range | Blue-light transmittance (%) | | Requirement (%) |
|-------------|------------------------------|--------------|-----------------|
| | Left ocular | Right ocular | |
| 380 - 500nm | 82.14 | 81.50 | ≤ 83.5 |

Remark: 17% blue-light absorption was claimed by the applicant.

5.3.5.2.2 Solar UV absorption

| Range | Measured value (%) | | Requirement (%) | |
|------------------------------------|--------------------|--------------|-----------------|--------------|
| | Left ocular | Right ocular | Left ocular | Right ocular |
| 280 - 400nm (t _{SUV400}) | 0.02 | 0.02 | ≤ 0.5 | ≤ 0.5 |

Note: It has been claimed that the filters are 100% UV-absorption.

5.3.5.2.8 UV400

| Range | Maximum spectral transmittance | | Requirement (%) |
|--------------|--------------------------------|------------------|-----------------|
| | Left ocular (%) | Right ocular (%) | |
| 190 – 400 nm | 0.22 | 0.24 | < 5.0 |

Date sample received: May 16, 2024

Testing period: May 16, 2024 To May 29, 2024

To be continued



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End of report

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