

## TEST REPORT

Hardline Laboratory

Report No. : YAC0091/2020

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Date : MAY. 12, 2021

**Honeywell Salisbury**

4091 Azalea Drive, North Charleston, USA 29405

**The following merchandise was submitted and identified by the applicant as:**

Product Description: ARC Flash Face shield  
Style/Item No.: AS1200-PP ARGUS 12 CALORIE ARCSHIELD  
Manufacturer/Vendor: Paulson  
Country of Origin: USA

**We have tested the submitted sample(s) as requested and the following results were obtained:**

Test Requested:

1. ANSI/ISEA Z87.1-2020 American National Standard for Occupational and Educational Personal Eye and Face Protection Devices
2. ISO 8980-5:2005 Ophthalmic optics — Uncut finished spectacle lenses — Part 5: Minimum requirements for spectacle lens surfaces claimed to be abrasion-resistant
3. Weather Resistance Test

Optional Requirements: 6.2 Anti-Fog Properties  
7.1 Impact Protector Requirements (+)  
7.2 Optical Radiation Protector Requirements Table 11(S)

Test Method & Result: --- See following sheet(s) ---

Date of Receipt: DEC. 30, 2020

Testing Period: DEC. 30, 2020 ~ JAN. 20, 2021

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Signed for and on behalf of  
SGS Taiwan Ltd.

Justin Yang  
Asst. Supervisor



Testing site:  
61, Kai-Fa Road, Nanzih Export Processing Zone, 81170, Kaohsiung, Taiwan

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**Test Method & Result****1. ANSI/ISEA Z87.1-2020 American National Standard for Occupational and Educational Personal Eye and Face Protection Devices**SectionResult

## 5. General Requirements

## 5.1 Optical Requirements

## 5.1.1 Optical Quality

Pass

## 5.1.2 Luminous Transmittance

N/A**Note.** Not clear lens, see section 7.2

## 5.1.3 Haze

N/A

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**Test Result**Section

5.1.4 Refractive Power, Astigmatism, Resolving Power, Prism and Prism Imbalance for Plano Protectors

ResultPass**Finding**

Test/Property	Requirement	Test Value	
		Left Ocular	Right Ocular
Refractive Power	See Table 1	No requirement	No requirement
Astigmatism		No requirement	No requirement
Resolving Power		Pattern 20	Pattern 20
Prism	See Table 2	< 0.37 Δ	< 0.37 Δ
Vertical Prism Imbalance		0.00 Δ	
Horizontal Prism Imbalance		0.20 Δ (Base Out)	

**Table 1.** Tolerance on Refractive Power, Astigmatism and Resolving Power - Standard Optics

Protector	Refractive Power	Astigmatism	Resolving Power
Spectacle, Reader	±0.06 D	≤ 0.06 D	Pattern 20
Goggle, Full-facepiece respirator	±0.06 D	≤ 0.06 D	Pattern 20
Faceshield windows, Loose-fitting respirator	No requirement	No requirement	Pattern 20
Welding helmet lenses	±0.06 D	≤ 0.06 D	Pattern 20

**Table 2.** Tolerance on Prism and Prism Imbalance

Protector	Prism	Vertical Imbalance	Base In Imbalance	Base Out Imbalance
Spectacle, Reader	≤ 0.50 Δ	≤ 0.25 Δ	≤ 0.25 Δ	≤ 0.50 Δ
Goggle, Full-facepiece respirator	≤ 0.25 Δ	≤ 0.125 Δ	≤ 0.125 Δ	≤ 0.50 Δ
Faceshield windows, Loose-fitting respirator	≤ 0.37 Δ	≤ 0.37 Δ	≤ 0.125 Δ	≤ 0.75 Δ
Welding helmet lenses	≤ 0.50 Δ	≤ 0.25 Δ	≤ 0.25 Δ	≤ 0.75 Δ

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**Test Result**Section

5.1.5 Refractive Power, Astigmatism, Prism and Prism Imbalance for Prescription Protectors and Magnifiers

ResultN/A

5.2 Physical Requirements

Pass

5.2.1 Drop Ball Impact Resistance

Pass

5.2.2 Ignition

Pass

5.2.3 Corrosion Resistance of Metal Components

N/A**Note:** There's no metal part of the sample.

5.2.4 Minimum Coverage Area

Pass

5.3 Markings

See  
Finding

Protector markings shall be placed in relatable proximity to each other on the product in the sequence specified below:

- Manufacturer's marks or logos
- Designation of standard (Z87 or Z87-2, for prescription devices)
- Coverage
- Optical level
- Optional Hazard-Specific Marks, as applicable:
  - Impact-rated marking (+)
  - Optical radiation marking
  - droplet and splash marking
  - dust marking
  - fine dust marking
- Optional Design Marks, as applicable:
  - Anti-fog treatment

**Finding**

	Manufacturer's marks or logo	Standard	Impact Mark	Relaxed Optical Level	Lens Type	Use
<b>Lens</b>	Honeywell	Z87.1	+	<u>No Claim</u>	S	<u>No Claim</u>
<b>Frame</b>	Not Applicable					

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**Test Result****Section**

## 6.2 Anti-Fog Properties

When tested in accordance with Section 9.20, the lenses of protectors marked in accordance with Table 3 as having anti-fog properties shall remain free from fogging for a minimum of 8 seconds.

**Finding**

The evaluated samples were fogged within 8 seconds. (Photo C)

**Result****\*Fail**

## 7 Optional Hazard-Specific Protector Requirements

## 7.1 Impact Protector Requirements

## 7.1.3 Lateral (Side) Coverage

**Pass**

## 7.1.4 Impact Requirements

## 7.1.4.1 Protector Acceptance Criteria

## 7.1.4.2 High Mass Impact

**Pass****Finding**

Determined	Remark
4 out of 4 Passed	The complete devices met the protector acceptance criteria listed in Section 9.11 after testing.

## 7.1.4.3 High Velocity Impact

**\*Fail****Finding** (Photo D)

Sample	Impact Point		Result
01	Right Ocular	Visual Center 0°	Pass
02	Right Ocular	Visual Center 30°	Pass
03	Right Side	Temporal 90° ↑ 10 mm	Pass
04	Left Ocular	Visual Center 0°	Pass
05	Left Ocular	Visual Center 30°	Pass
06	Left Side	Temporal 90° ↓ 10 mm	*Fail

**Note.** 1. Impact ball: 6.00 mm (0.24 in.) diameter steel ball

2. Impact speed: Face shields: 101.5 m/s.

## 7.1.4.4 Penetration Test (lenses only)

**Pass****Finding**

Determined	Remark
4 out of 4 Passed	The complete devices met the protector acceptance criteria listed in Section 9.13 after testing.

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**Test Result**Section

7.2 Optical Radiation Protector Requirements

7.2.2.1 Filter Lenses

7.2.2.1.1 Transmission Requirements

ResultS**Finding**

Transmittance requirements for Special-Purpose Lenses			Test Value (%)	
Lens Type	Maximum %	Minimum %	Left Ocular	Right Ocular
Tinted	100	8	42.77 %	42.39 %

Lens Type	*Ratio [R] of measured Luminous Transmittance	Test Value (%)
Tinted	0.90 < R < 1.10	1.01

**Test Method & Result**

2. ISO 8980-5:2005 Ophthalmic optics — Uncut finished spectacle lenses —

Part 5: Minimum requirements for spectacle lens surfaces claimed to be abrasion-resistant

Clause

4 Requirement

Under the conditions described in the test method given in Clause 5, the surface tested shall be free of visible abrasion

ResultPass**Finding**

Sample	Test result
01	No Visible abrasion found after testing.

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**Test Method & Result****3. Weather Resistance Test**

Test Equipment:

Name	Brand	Model
Xenon-Arc Light Apparatus	ATLAS	Ci3000

Lab Environmental Conditions:

Ambient Temperature:  $(25 \pm 3)^{\circ}\text{C}$ Relative Humidity:  $(50 \pm 25)\% \text{RH}$ 

Test Method:

ASTM D2565-99

Standard Practice for Xenon-Arc Exposure of Plastics Intended for Outdoor Applications

Test Condition:

Lamp: Xenon-arc

Filter: Daylight

Irradiance:  $0.55 \text{W/m}^2/\text{nm}$  at 340 nm

Exposure Cycle: (1) 18h light at  $(63 \pm 2)^{\circ}\text{C}$  black panel temperature, consisting of alternating intervals of 102 min light only followed by 18 min of light with water spray.

(2) 6 h dark at  $(38 \pm 2)^{\circ}\text{C}$  chamber temperature,  $(95 \pm 4)\% \text{RH}$  with no water spray.

Exposing duration: 24 hours

Test Result:

Check Item	Appearance check (visual check)
Style/Item No.	
No.1	No visible variation.

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## TEST REPORT

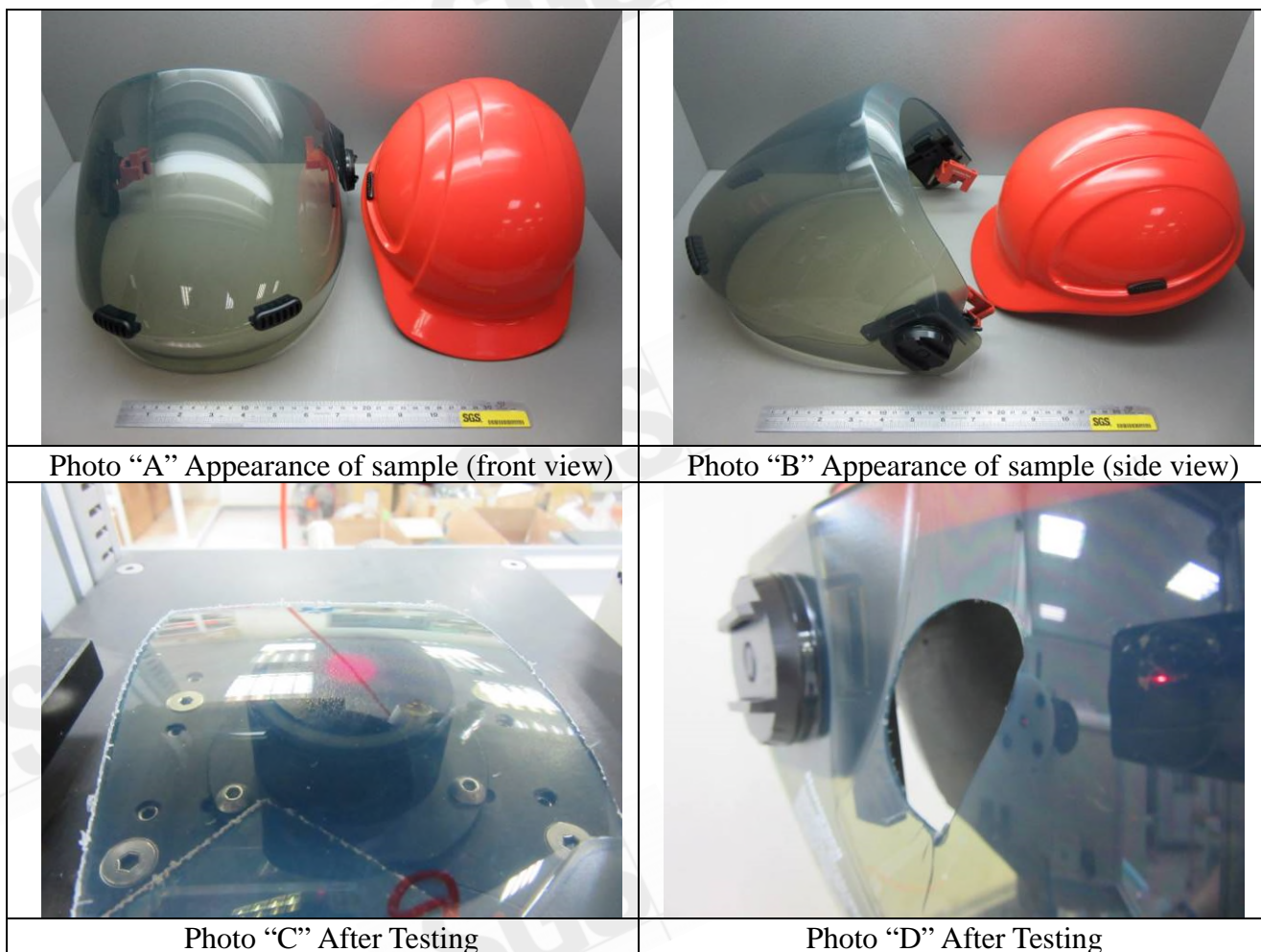
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- Remark:**
1. The samples are complete devices claimed by applicant.
  2. Samples were provided by applicant and samples were randomly selected to be assessed.
  3. N/A = Not Applicable
  4. Only applicable sections were shown.
  5. The content of this report is invalid if it is not presented as the entire report.
  6. The statement of conformity is based on the test results, but does not include the measurement uncertainty.

### — Picture(s) —



--- End of Report ---

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