

Test Report

EN 166 : 2001

Report no: 1.10.04.84

Client: INSPEC Certification Services
56 Leslie Hough Way
Salford
Greater Manchester
M6 6AJ

Client order(s): TS10/4363a and Geoff White

Order(s) received: 10 February to 14 April 2010

Manufacturer: Elvex Corporation

Model(s): SG-37 (OVR-Spec)

Date(s) of tests: 17 to 26 February 2010

Conditions:

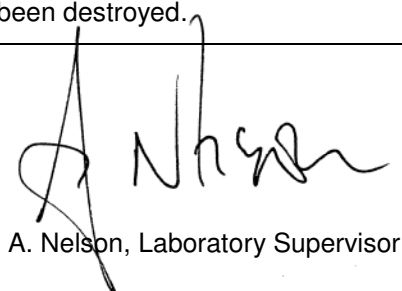
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Tests marked are not included in the UKAS accreditation schedule for INSPEC.

Samples have been destroyed.

Signed:



A. Nelson, Laboratory Supervisor

Issued: 27 April 2010

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Summary of assessment*

Clause		Assessment
6.1	General construction	Pass
6.2	Materials	NAs
6.3	Headbands	
7.1.1	Field of vision	Pass
7.1.2.1	Spherical, astigmatic & prismatic refractive powers	Pass
7.1.2.2.1	Non-filtering oculars	
7.1.2.2.2	Oculars with filtering action (filters) and housings for oculars with filtering action	
7.1.2.2.3	Variations in transmittance	
7.1.2.3	Diffusion of light	
7.1.3	Quality of material and surface	Pass
7.1.4.1	Minimum robustness	
7.1.4.2	Increased robustness	Pass
7.1.5.1	Stability at elevated temperature	Pass
7.1.5.2	Resistance to ultraviolet radiation (oculars only)	
7.1.6	Resistance to corrosion	Pass
7.1.7	Resistance to ignition	Pass
7.2.2	Protection against high speed particles	Pass
7.2.3	Protection against molten metals & hot solids	
7.2.4	Protection against droplets and splashes of liquids	
7.2.5	Protection against large dust particles	
7.2.6	Protection against gases and fine dust particles	
7.2.7	Protection against short circuit electric arc	
7.2.8	Lateral protection	
7.3.1	Resistance to surface damage by fine particles	
7.3.2	Resistance to fogging of oculars ☒	
7.3.3	Oculars with enhanced reflectance in the infra-red ☒	
7.3.4	Protection against high speed particles at extremes of temperature	
9	Marking	
10	Information supplied by the manufacturer	

Key

	Highlighting shows clauses requested for each model. Any other clauses were not requested.
Pass	Requirement satisfied.
Ltd	Testing was insufficient to completely verify compliance with clause. See "Procedures" / "Result detail".
Fail	Requirement not satisfied. See "Result detail".
NAs	Assessment not carried out. See "Result detail".
NAp	Requirement not applicable.
NT	Requested but not tested due to early termination following failure.
☒	These tests were not included in the UKAS accreditation schedule for INSPEC.

* Assessment relates only to those items tested in this report.

Product characteristics**Product type:** Spectacle

Property	Clause	Claimed characteristic (relevant to testing requested)
Optical class	7.1.2.1	1 (proposed marking)
Scale number	7.1.2.2	-
Protection against high speed particles	7.2.2	Low energy
Protection against high speed particles (extreme temps.)	7.3.4	-

Sample details

Product	Quantity	Received	INSPEC no. (1W0100+)
SG-37 (OVR-Spec) safety spectacle	28	25 Jan. 10	01 to 03 and 07 to 30

Samples were selected by INSPEC from the submission detailed above, randomly where possible.

Procedures

Testing was performed in accordance with EN166 : 2001, unless stated otherwise below.

General Unless stated otherwise, samples were tested in the condition as received at INSPEC.

General Unless required otherwise by the standard, testing was performed under ambient conditions.

Result detail**6.1 General construction**

All samples were assessed.

The samples were free from projections, sharp edges and other defects which are likely to cause discomfort or injury during use.

6.2 Materials

Manufacturer to certify whether the parts of the eye-protector which are in contact with the wearer are made of materials which are not known to cause skin irritation.

NAs**7.1.1 Field of vision**

Samples 01 to 03 were assessed.

The samples exhibited at least the minimum field of vision as defined by the Standard.

7.1.2.1 Spherical, astigmatic & prismatic refractive powers**Spherical refractive power**

Sample	Spherical power (m ⁻¹)	
	Left	Right
01	0	+0.01
02	-0.01	0
03	-0.01	+0.01
Max limit	± 0.06	

Astigmatic refractive power

Sample	Astigmatic power (m ⁻¹)	
	Left	Right
01	0.01	0.02
02	0.03	0.02
03	0.02	0.02
Limit	≤ 0.06	

Difference in prismatic refractive power

Sample	Horizontal difference (cm/m)	Base	Vertical difference (cm/m)
01	0.15	out	0.03
02	0.33	out	0.03
03	0.20	out	0.05
Limit	≤ 0.75	-	≤ 0.25

7.1.3 Quality of material and surface

Samples 01 to 03 were assessed.

For each of the samples tested, there were none of the ocular defects listed in the Standard.

7.1.4.2 Increased robustness**7.1.4.2.2 Complete eye protectors**

Samples 07 to 18 were assessed.

None of the samples tested exhibited any of the impact defects listed in the Standard.

7.1.5.1 Stability at an elevated temperature

Samples 01 to 03 were assessed.

The samples tested showed no apparent deformation following removal from conditioning.

7.1.6 Resistance to corrosion

Samples 07 to 09 were assessed.

Following testing, all metal parts of the samples displayed smooth surfaces and were free from corrosion.

7.1.7 Resistance to ignition

Samples 10 to 12 were assessed.

No part of the samples tested ignited or continued to glow after removal of the steel rod.

7.2.2 Protection against high speed particles

See Clause 7.1.4.2 for details of the assessment to the requirements for "Increased robustness".

Samples 19 to 30 were assessed against the low energy impact requirements.

None of the samples tested exhibited any of the impact defects listed in the Standard.

ANNEX

This Annex comprises one section.

1. Estimates of the uncertainty of measurement - 1 page.

EN 166 : 2001**Estimates of the uncertainty of measurement**

Clause	Test	Uncertainty	
6.3	Headband width	0.9mm (max)	
7.1.2.1	Spherical and astigmatic refractive powers	0.01D (max)	
	Prismatic refractive power difference	0.01cm/m (max)	
	Prismatic refractive power (unmounted oculars)	0.012cm/m	
7.1.2.2.1	Transmittance - non-filtering	0.19%	
7.1.2.2.2	Transmittance - filters	Range (%)	-
		100 to 17.8	0.26%
		17.8 to 0.44	0.51%
		0.44 to 0.023	2.9%
		0.023 to 0.0012	5.0%
	0.0012 to 0.000023	5.8%	
	Transmittance - housing/frame	See 7.1.2.2.2	
7.1.2.2.3	Variations in transmittance	0.23%	
7.1.2.3	Reduced luminance factor	9.8%	
7.1.5.2	Relative change in luminous transmittance	Range (%)	-
		Non-filtering	0.27%
		100 to 17.8	0.37%
		17.8 to 0.44	0.72%
		0.44 to 0.023	4.1%
		0.023 to 0.0012	7.0%
	0.0012 to 0.000023	8.1%	
	Diffusion of light	9.8%	
7.2.1.4	Polarizing filters	1° (max)	
7.2.3 b)	Vertical centre-line depth	0.99%	
7.2.3 f) & g)	Penetration time	4.8%	
7.2.4	Vertical centre-line depth	0.99%	
7.2.5	Reflectance	5.6%	
7.2.7	Thickness	(0.49%+0.02mm)	
	Transmittance - filters	See 7.1.2.2	
	Vertical centre-line depth	0.99%	
7.3.1	Resistance to damage by fine particles	8.7%	

Values expressed as a percentage (%) are relative.

It should be noted that the above values have not been taken into account when making assessment to the pass/fail criteria.