

ICS[®]
INC. LABORATORIES

Test Report T9127-02-2 Issue 1
ISO 12312-2:2015
American Paper Optics, LLC
Paper Eclipsor Safe Solar Viewers
15 September 2015



Approved by:

A handwritten signature in blue ink, appearing to read 'Keith E. Whitten', written over a horizontal line.

Keith E. Whitten
Laboratory Manager

Prepared by:

A handwritten signature in blue ink, appearing to read 'Cathy Woloszyn', written over a horizontal line.

Cathy Woloszyn
Lab Administrator

- a) Reports are issued pursuant to the ICS standard Terms and Conditions agreement.
- b) The contents of this test report are confidential. Reproduction of the report is prohibited except in full, unless approved in writing by ICS Laboratories, Inc.
- c) Unless otherwise indicated, the test results contained in this report apply only to the samples tested and not to lots or batches from which they were taken.
- d) Where applicable, test data provided by subcontractor is uniquely identified in the test report.
- e) Where applicable, test data not covered under our ISO/IEC 17025 Accreditation is uniquely identified in the test report.

WARNING: This Test Report may contain technical data whose export is restricted by the Arms Export Control Act (Title 22, U.S. C., Sec 2751, et seq.) or the Export Administration Act of 1979, as amended, Title 50, U.S.C., App. 2401 et seq. and which may not be exported, released or disclosed to non-U.S. persons (i.e. persons who are not U.S. citizens or lawful permanent residents ["green card" holders]) inside or outside the United States, without first obtaining an export license. Violations of these export laws are subject to severe civil, criminal and administrative penalties.

ICS Laboratories, Inc. • 1072 Industrial Parkway North • Brunswick, Ohio 44212 USA
Phone: 330.220.0515 Fax: 330.220.0516

Client: American Paper Optics, LLC
 2995 Appling Road, Suite 106
 Bartlett, TN 38133
 USA

Date: 15 September 2015
 Report: T9127-02-2
 Issue: 1
 Page: 1 of 3

Objective:

Contract testing to ISO 12312-2:2015(E) “Eye and face protection — Sunglasses and related eyewear — Part 2: Filters for direct observation of the sun”.

Samples:

Paper Eclipser Safe Solar Viewers

Part Number	Quantity	Sample ID
Eclipser	19	7A-xx
	5	7A-2xx

Date(s) submitted: 07 July 2014 and 26 August 2015

Procedures:

Testing protocols in accord with good laboratory practice were employed for all tests.

All tests were conducted in a standard laboratory atmosphere unless otherwise specified.

Samples were randomly selected from the quantity provided and tested in the as-received condition unless otherwise stated.

Assessment Summary:

Date(s) tested: 08 through 14 July 2014 and 27 through 28 August 2015

ISO 12312-2:2015(E) Requirements	Compliant	Non-Compliant
4 Requirements and associated test methods		
4.1 Transmittance		
4.1.1 General	X	
4.1.2 Uniformity of luminous transmittance	X	
4.2 Material and surface quality		
4.2.1 Requirements	X	
4.2.2 Test method		
4.3 Mounting		
4.3.1 General	X	
4.3.2 Dimensions	X	
4.3.3 Material quality	X	
5 Labelling	X	

Samples as assessed meet the requirements of ISO 12312-2:2015(E).

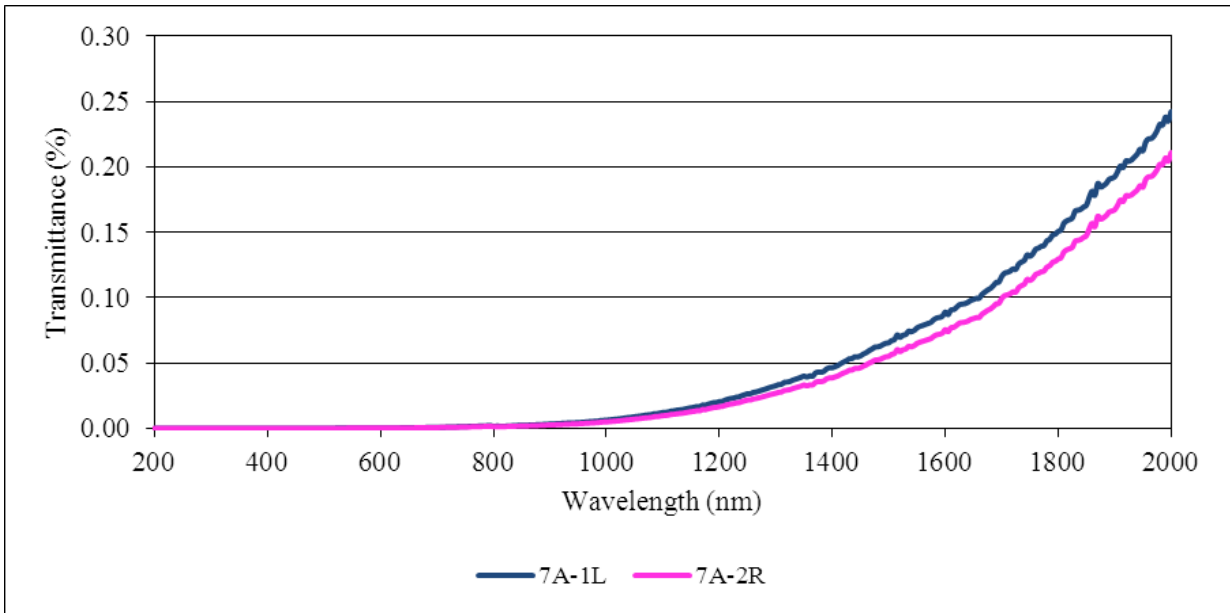
Client: American Paper Optics, LLC
 2995 Appling Road, Suite 106
 Bartlett, TN 38133
 USA

Date: 15 September 2015
 Report: T9127-02-2
 Issue: 1
 Page: 2 of 3

Results:

4.1.1 Transmittance-General

Sample ID:	7A-1L	7A-2R	Requirement
Luminous (τ_V) (%)	0.0001000	0.0000702	0.000061 to 0.0032
280 to 315nm (τ_{SUVB}) (%)	< 3.2E-5	< 3.2E-5	$\leq \tau_V$
315 to 380nm (τ_{SUYA}) (%)	< 3.2E-5	< 3.2E-5	$\leq \tau_V$
780 to 2000nm (τ_{SIR}) (%)	0.022	0.019	≤ 3
Pass/Fail:	Pass		



4.1.2 Uniformity of luminous transmittance

Sample ID:	7A-202L	7A-202R	Requirement
Transmittance (%)			
Maximum:	0.0000726	0.0000674	
Center:	0.0000713	0.0000662	
Minimum:	0.0000702	0.0000649	
Variation (%)	3.31	3.71	$\leq 10\%$
Pass/Fail:	Pass		

Client: American Paper Optics, LLC
 2995 Appling Road, Suite 106
 Bartlett, TN 38133
 USA

Date: 15 September 2015
 Report: T9127-02-2
 Issue: 1
 Page: 3 of 3

4.2.1 Filter material and surface quality; Result: Pass

Requirement: Except in a marginal area 5 mm wide, filters shall be free from defects likely to impair vision in use, such as bubbles, scratches, inclusions, dull spots, pitting, scouring, pocking, scaling, and undulations. Metal coated filter materials shall not exhibit more than one pinhole defect not greater than 200 µm in average diameter within any 5 mm diameter circular zone.

4.3.1 Mounting-General; Result: Pass

Requirement: If mounted, a filter shall be held securely so that it cannot be dislodged by normal handling or by gusts of wind.

4.3.2 Dimensions; Result: Pass

Requirement: The filter or filters and mounting assembly shall be of a size sufficient to cover both eyes of the user simultaneously and in no case shall have overall dimensions less than 115 mm in width and 35 mm in depth in the plane parallel to the facial plane. Spectacle shaped mountings may have a triangular cut-away area to accommodate the crest of the nose, not to exceed 15 mm in apical height and 35 mm width at the base and may have separate filters, one for each eye, provided that the overall dimensions are satisfied.

4.3.3 Material quality; Result: Pass

Requirement: The filter and mounting shall be free from roughness, sharp edges, projections, or other defects which could cause discomfort or injury during use. No part of the filter or mounting which is in contact with the wearer shall be made of materials which are known to cause any skin irritation.

5 Labelling; Result: Pass

The filter and/or its packaging shall show the following information in the language(s) of the country where the product is to be offered for sale:

- a) name and address of manufacturer of the product
- b) instructions for use in looking at the sun or a solar eclipse
- c) warnings that viewing the sun without an appropriate filter can result in permanent eye injury
- d) warnings that filters that are damaged or separated from their mountings should be discarded
- e) advice on storage, cleaning, and maintenance, as appropriate
- f) obsolescence deadline or period of obsolescence, as appropriate

Estimates of Uncertainties:

ISO 12311:2013(E) Test Method	Estimated Uncertainty
7.1.1 Measurement of spectral transmittance	
0.0032% to 0.000061%	0.98% Relative

Estimated uncertainties have been calculate in accordance with the principles of ISO/IEC Guide 98-3:2008, Uncertainty of measurement-Part 3: Guide to the expression of uncertainty in measurement (GUM:1995).

Estimated uncertainties have a 95% confidence level.

A coverage factor (k) of 2.0 was used.

TERMS AND CONDITIONS

1. Client acknowledges that ICS Laboratories (ICS) performs testing services only as specified by Client. ICS does not design, warrant, supervise or monitor compliance of products or services except as specifically agreed to in writing. By their very nature, testing, analysis, and other ICS services are limited in scope and subject to expected measurement variability.
2. Client or Client's authorized representative shall be afforded the opportunity to clarify test requests and reasonable access to monitor test work, provisional to protecting the confidentiality of other clients.
3. ICS shall keep documents and information related to Client confidential and will not disclose any such information to third parties without Client permission. ICS will, however, disclose any such information in response to compulsory legal process after providing Client with a copy of such process.
4. ICS Reports apply only to the standards or procedures identified therein and to the sample (s) tested and or inspection (s) made. Test and/or inspection results are not indicative or representative of the qualities of the lot from which the sample was taken or of apparently identical or similar products.
5. ICS Test Reports and their insignia are for the exclusive use of the Client. Reports, in their entirety, may be utilized at the discretion of Clients and/or their authorized agents for purposes including, but not limited to, research & development, recordkeeping, product packaging, educational and promotional materials in various formats, certification, and compliance. As an accredited independent testing laboratory, ICS maintains an interest in preventing the misrepresentation of the contents of its test reports. As such, Clients may NOT use, reproduce or otherwise disseminate excerpted, partial, redacted or otherwise altered ICS test reports without the prior review of such use by ICS and the granting of its written approval. Further, Clients are prohibited from manipulating data and/or extrapolating-from-it statistics or conclusions that contradict or eclipse the empirical results of testing as reflected by the totality of the report. Clients are to refrain from utilizing ICS Test Reports and/or the ICS logo in a manner that suggests any extra-report conclusions are provided and/or endorsed by ICS Laboratories.
6. Any use by Client of ICS's Reports or the information contained therein is conditioned on timely payment of all fees.
7. The name(s) listed as the "Issued to" party on test reports may not reflect the actual entity submitting and/or contracting the assessment.
8. ICS shall retain copies of testing job files (including reports) for a period of at least six (6) years and when applicable, evidentiary test samples for the length of time as deemed appropriate after which time they may be disposed of at management's discretion. If Client requests additional copies of Reports during this period, an additional charge will apply for the preparation and delivery of such reports.
9. Test reports are valid for certification purposes for one year from date of issue, inclusive of retest or variant additions which must be performed within one year of date of issue to avoid full retest.
10. Client is responsible for procuring, at its cost, insurance protecting the value of its property and samples.
11. For the safety of our personnel, Client must advise if samples are known or suspected to contain hazardous substances. Safety Data Sheets must be provided upon request if available.
12. ICS represents that Services shall be performed within the limits agreed with Client, and in a manner consistent with good laboratory practice. **NO OTHER REPRESENTATIONS TO CLIENT, EXPRESS OR IMPLIED, AND NO WARRANTY OR GUARANTEE IS INCLUDED OR INTENDED IN THIS**
13. ICS hereby objects to any conflicting terms contained in any order or acceptance submitted by Client.
14. Schedules are confirmed upon acceptance of quotation. All reasonable efforts will be made to comply with conferred schedule. Guarantees are neither implied nor promised.
15. Certain work may be subcontracted to ICS authorized affiliate laboratories as required or applicable. Client will be made aware of subcontracted work.
16. Client agrees to pay any and all additional costs associated with unexpected or above-standard communications and/or consultations with Client or third parties as designated by Client.
17. Client agrees to pay any and all additional costs for work additional to the original scope of work as agreed to by Client.
18. Client understands and agrees that ICS, in entering into this Contract and by performing services hereunder, does not assume, abridge, abrogate or undertake to discharge any duty or responsibility of Client to any other party or parties. No one other than Client shall have any right to rely on any Report or other representation of conduct of ICS and ICS disclaims any obligations of any nature whatsoever with respect to such person.
19. Client agrees, in consideration of ICS undertaking to perform the test(s) hereunder, to protect, defend and indemnify ICS from any and all claims, damages, expenses either direct or consequential for injuries to persons or property arising out of or in consequence of the performance of the testing, inspection and reporting hereunder and/or the performance of the products tested or inspected hereunder, **UNLESS CAUSED BY THE NEGLIGENCE OF ICS.**
20. **IT IS AGREED THAT IF ICS SHOULD BE FOUND LIABLE FOR ANY LOSSES OR DAMAGES ATTRIBUTABLE TO THE SERVICES HEREUNDER IN ANY RESPECT, ITS LIABILITY SHALL IN NO EVENT EXCEED THE AMOUNT OF THE FEE PAID BY CLIENT FOR SUCH SERVICES AND CLIENT'S SOLE REMEDY AT LAW OR IN EQUITY SHALL BE THE RIGHT TO RECOVER UP TO SUCH AMOUNT.**
21. Quotations are valid for 30 days from date of issue. Terms: 30% Laboratory/Testing fees invoiced and payable upon acceptance of quotation. Remaining fees invoiced and payable upon completion of services, 15 days net. Cancelled jobs will be invoiced for work performed and/or set-up costs incurred. Cancelled Purchase Orders are subject to 10% service charge. Shipping costs incurred by ICS will be invoiced at cost +10% handling fee. A minimum USD \$25.00 handling fee will be also invoiced. For shipping costs incurred by Client, ICS will invoice a minimum USD \$25.00 handling fee.
22. In the event that payment is not received within 15 days of invoice date, Client agrees to pay a late payment charge on the unpaid balance equal to 1-1/2% per month or the maximum charge allowed by law, whichever is less, and all costs and expenses, including attorney's fees where recovery of the same is not prohibited by law, incurred by ICS in collecting such invoices.
23. All costs associated with compliance with any subpoena (s) for documents, testimony in a court of law, or for any other purpose relating to work performed by ICS in connection with work performed for that Client, shall be paid by Client. Client shall also pay ICS's then existing standard fee for consulting, deposition and trial testimony and all expenses related thereto.
24. Cancelled/discontinued orders: Client responsible for all administrative and testing charges up to point of cancellation.