


**ICS<sup>®</sup>**  
**INC. LABORATORIES**


Test Report T11479-01-1 Issue 1  
ISO 12312-2:2015  
Explore Scientific, LLC  
Sun Catcher Eclipse Glasses  
30 January 2017



Approved by:

  
\_\_\_\_\_  
Keith E. Whitten  
Laboratory Manager

Prepared by:

  
\_\_\_\_\_  
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: Explore Scientific, LLC  
 621 Madison Street  
 Springdale, AR 72762  
 USA

Date: 30 January 2017  
 Report: T11479-01-1  
 Issue: 1  
 Page: 1 of 4

**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:**

Sun Catcher Eclipse Glasses

| Part Number | Quantity | Sample ID |
|-------------|----------|-----------|
| ECLIPBPCUST | 6        | 9A        |

Date(s) submitted: 26 January 2017

**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: 26 through 30 January 2017

| 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 - filters | X         |               |
| 4.3 Mounting                               |           |               |
| 4.3.1 General                              | X         |               |
| 4.3.2 Dimensions                           | X         |               |
| 4.3.3 Material quality - frames            | X         |               |
| 5 Labelling                                | X         |               |

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

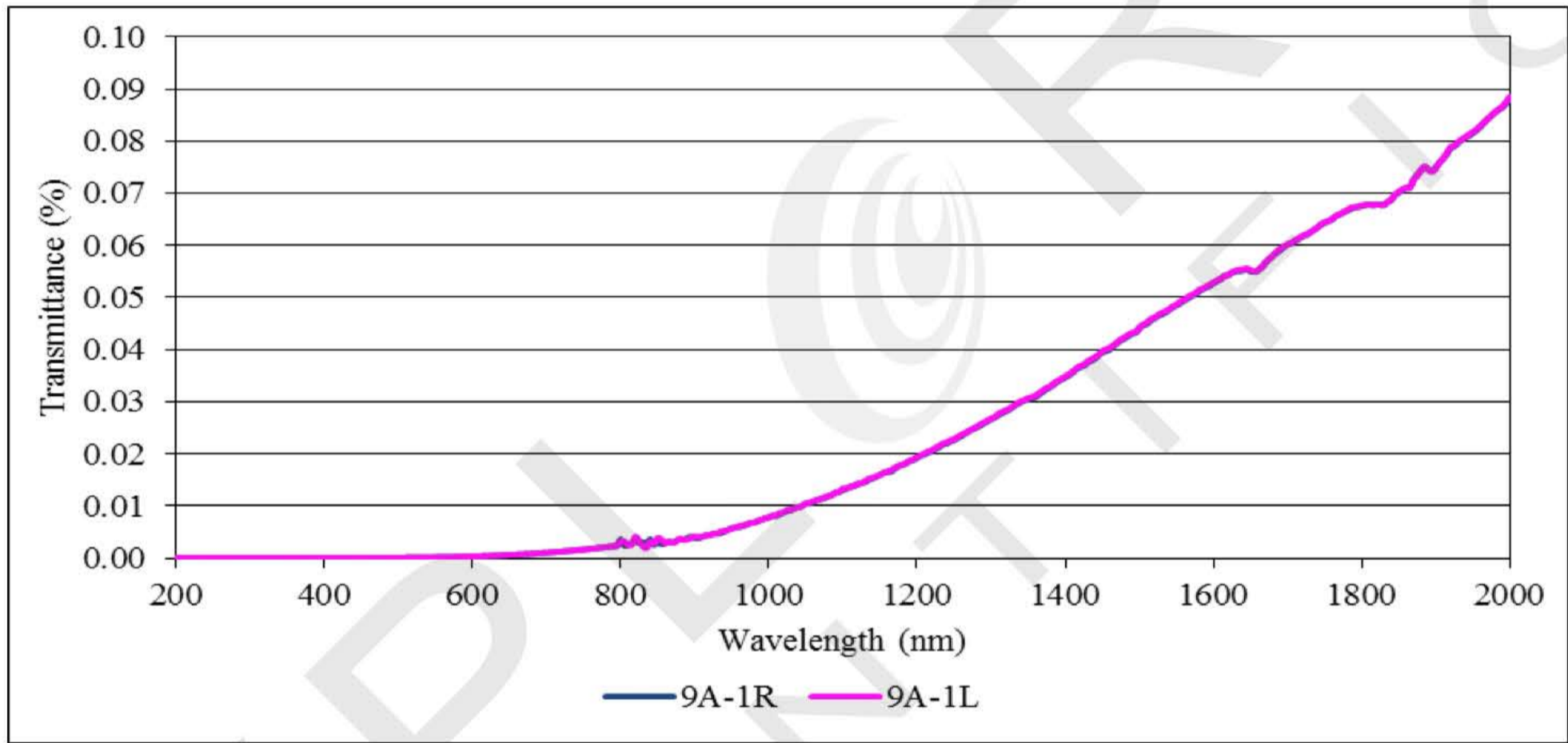
Client: Explore Scientific, LLC  
 621 Madison Street  
 Springdale, AR 72762  
 USA

Date: 30 January 2017  
 Report: T11479-01-1  
 Issue: 1  
 Page: 2 of 4

**Results:**

**4.1.1 Transmittance-General**

| Sample ID:                         | 9A-1R     | 9A-1L     | Requirement        |
|------------------------------------|-----------|-----------|--------------------|
| Luminous ( $\tau_V$ ) (%)          | 0.000209  | 0.000211  | 0.000061 to 0.0032 |
| 280 to 315nm ( $\tau_{SUVB}$ ) (%) | < 0.00001 | < 0.00001 | $\leq \tau_V$      |
| 315 to 380nm ( $\tau_{SUVA}$ ) (%) | < 0.00001 | < 0.00001 | $\leq \tau_V$      |
| 780 to 2000nm ( $\tau_{SIR}$ ) (%) | 0.016     | 0.016     | $\leq 3$           |
| Pass/Fail:                         | Pass      |           |                    |



**4.1.2 Uniformity of luminous transmittance**

| Sample ID:        | 9A-1L    | 9A-1R    | Requirement |
|-------------------|----------|----------|-------------|
| Transmittance (%) |          |          |             |
| Maximum:          | 0.000191 | 0.000208 |             |
| Center:           | 0.000186 | 0.000196 |             |
| Minimum:          | 0.000183 | 0.000191 |             |
| Variation (%)     |          |          |             |
| Actual:           | 4.13     | 8.17     | $\leq 10\%$ |
| Pass/Fail:        | Pass     |          |             |

Client: Explore Scientific, LLC  
621 Madison Street  
Springdale, AR 72762  
USA

Date: 30 January 2017  
Report: T11479-01-1  
Issue: 1  
Page: 3 of 4

**4.2 Material and surface quality - filters; 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 - frames; 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

Client: Explore Scientific, LLC  
 621 Madison Street  
 Springdale, AR 72762  
 USA

Date: 30 January 2017  
 Report: T11479-01-1  
 Issue: 1  
 Page: 4 of 4

**Sample Photograph:**



**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.

EXPLORE SCIENTIFIC