



Test Report T18210-01-1 Issue 1  
ISO 12312-2:2015(E)  
Grafix Plastics  
SAFESHOT™ PLATE KIT (SSK01)  
28 August 2023



Approved by:

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 USA

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**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:**

SAFESHOT™ PLATE KIT

Part Number	Quantity	Sample ID
SSK01	3	0A

Date(s) submitted: 04 August 2023

**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.

Safeshot Plate and Eye-Safe Window were fully assessed.

Smartphone Window tested to 4.1.1 Transmittance-General for informational purposes only.

**Assessment Summary:**

Date(s) tested: 22 through 24 August 2023

ISO 12312-2:2015(E) Requirements	Compliant	Non-Compliant
4 Requirements and associated test methods		
4.1 Transmittance		
4.1.1 General		
<i>Eye-Safe Window</i>	X <sup>1</sup>	
<i>Smartphone Window</i>	For reference only	
4.1.2 Uniformity of luminous transmittance	X	
4.2 Material and surface quality	X	
4.3 Mounting		
4.3.1 General	X	
4.3.2 Dimensions	X	
4.3.3 Material quality	X	
5 Labelling	X	

<sup>1</sup>Due to equivalency data for the Eye-Safe Window from T17882-01.

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

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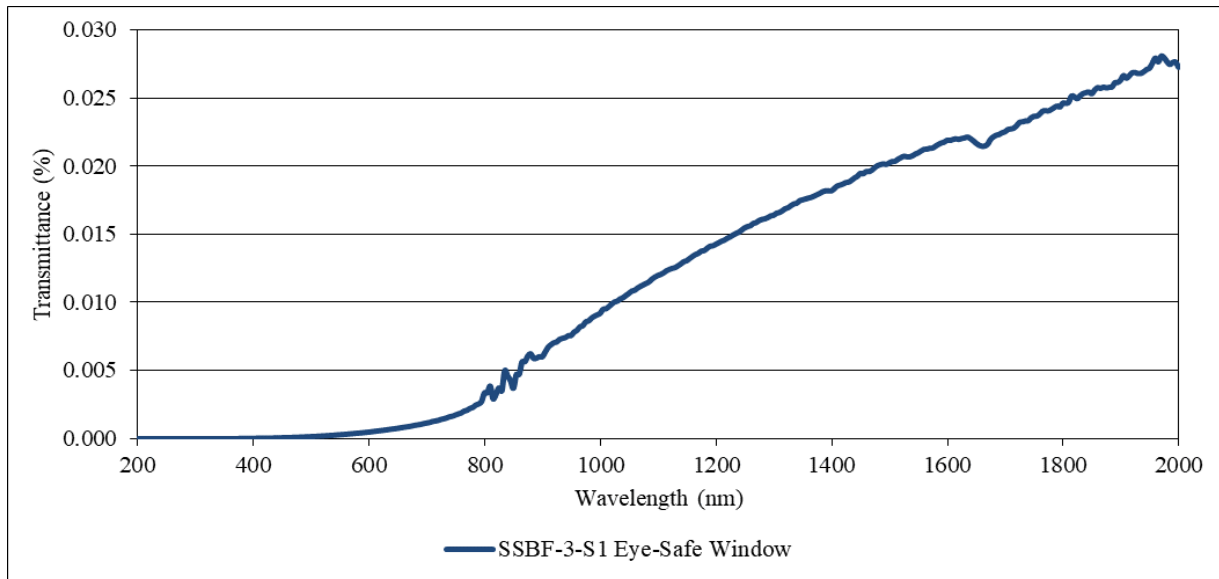
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**Results:**

**4.1.1 Transmittance-General – Eye-Safe Window**

Sample ID:	SSBF-3-S1	Requirement	Pass	Fail
Luminous-D65 ( $\tau_v$ ) (%)	0.000349	0.000061 to 0.0032	X	
Max. solar UVB-280 to 315nm ( $\tau_{SUVB}$ ) (%)	<0.00001	$\leq \tau_v$	X	
Max. solar UVA-315 to 380nm ( $\tau_{SUA}$ ) (%)	0.00001	$\leq \tau_v$	X	
Max. solar infrared-780 to 2000nm ( $\tau_{SIR}$ ) (%)	0.011	$\leq 3$	X	

<sup>1</sup>Due to equivalency data from T17882-01.



**4.1.2 Transmittance-Uniformity of luminous transmittance – Eye-Safe Window**

Sample ID:	0A-1	Requirement
Luminous-D65 ( $\tau_v$ ) (%)		
Maximum:	0.000670	
Center:	0.000656	
Minimum:	0.000630	
Relative Difference (%):	5.97	$\leq 10\%$
Pass/Fail:	Pass	

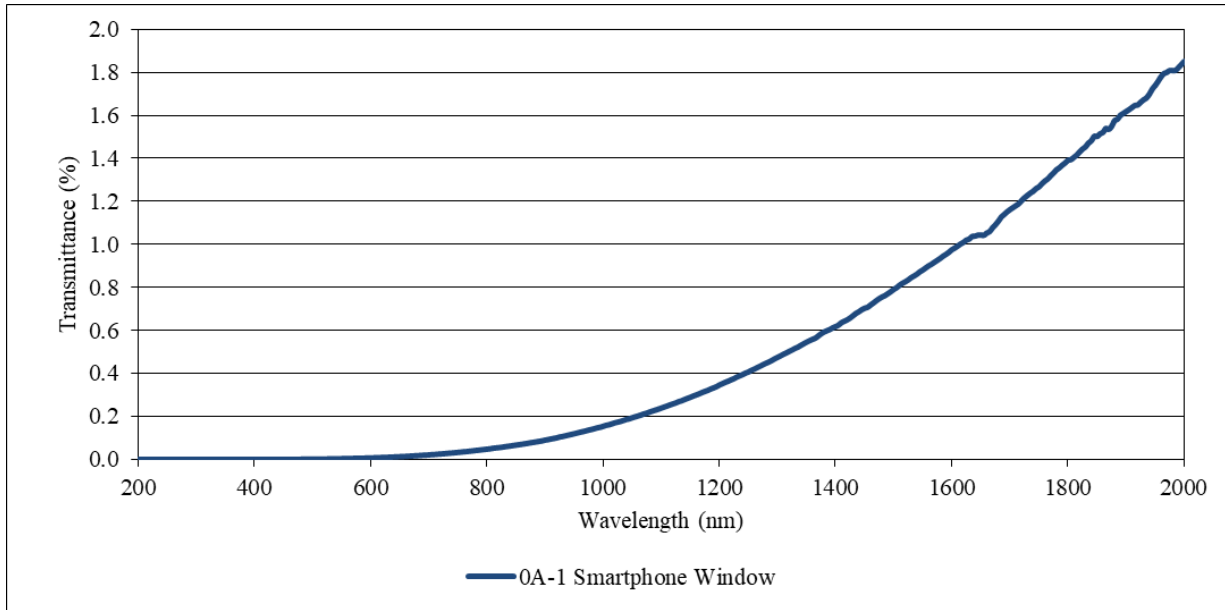
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**4.1.1 Transmittance-General – Smartphone Window**

Sample ID:	0A-1	Requirement	Pass	Fail
Luminous-D65 ( $\tau_V$ ) (%)	0.005028	0.000061 to 0.0032	For reference only	
Solar UVB-280 to 315nm ( $\tau_{SUVB}$ ) (%)	<0.00001	$\leq \tau_V$		
Solar UVA-315 to 380nm ( $\tau_{SUA}$ ) (%)	0.000071	$\leq \tau_V$		
Solar Infrared-780 to 2000nm ( $\tau_{SIR}$ ) (%)	0.311	$\leq 3$		

<sup>1</sup>Due to equivalency data from T17882-01.



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**4.2 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 Mounting-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.

*Note: Triangular cut-away only applies to cardboard spectacle shaped mountings.*

**4.3.3 Mounting-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.

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**Sample Photograph(s):**



**Estimates of Uncertainties:**

ISO 12311:2013(E) Test Method	Estimated Uncertainty
7.1.1 Measurement of spectral transmittance	10% Relative

Estimated uncertainties have been calculated 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.

Estimated Uncertainties were not taken into consideration for determination of pass/fail.

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15. Client agrees to pay any and all additional costs for work additional to the original scope of work as agreed to by Client.
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18. 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.
19. 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 not exceed the amount of the fee paid by Client for services rendered and Client's sole remedy at law or in equity shall be the right to recover that sum.
20. Quotations are valid for 30 days from date of issue. Standard Terms: 30% Laboratory/Testing fees invoiced and payable upon acceptance of quotation. 15 days net. Any change to these terms requires written approval by the President, Executive Vice President or Accounting Manager. ICS retains the right to require prepayment in full at any time. Cancelled jobs will be invoiced for work performed and/or set-up costs incurred. All jobs will be assessed a \$25 sample disposition fee. Shipping costs over \$25 incurred by ICS for sample returns will be invoiced at cost +10%.
21. ICS hereby objects to any conflicting terms contained in any order, acceptance or other subsequent correspondence submitted by Client.
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 costs related to deposition and trial testimony.
24. Cancelled/discontinued orders: Client responsible for all administrative and testing charges up to point of cancellation.