



**DIN EN 12600 Test Report  
PENDULUM IMPACT TESTING AND CLASSIFICATION OF FLAT GLASS**

Rendered to:  
SAINT-GOBAIN SOLAR GARD, LLC  
4540 Viewridge Avenue  
San Diego, California 92123

Report No.: G9267.01-119-37  
Test Date: 03/15/17  
Report Date: 03/29/17

**Specimen Details:**

Sample ID: Solar Gard® Sentinel Plus 8 mil on 6 mm annealed glass  
Overall Nominal Thickness: 6 mm  
Glazing Make Up: 200µm film (8 mil) applied to 6 mm annealed glass  
Film Manufacturer/Brand: Saint-Gobain Solar Gard / Solar Gard  
Test Samples Provided by: Saint-Gobain Solar Gard, LLC - Largo, FL  
Test Size: 876 mm wide by 1938 mm high  
Comment(s): Testing was witnessed by Mr. Miguel Detres from Saint-Gobain Solar Gard.

**Test Sample Test Date and Conditions:**

Date of Test	Test Temperature	Conditioning
03/15/17	21 °C	20 °C to 21 °C for 24 hours

**Reference Test Standard:** Each test specimen was tested in accordance with DIN EN 12600:2002, *Glass in building, Pendulum test - Impact test method and classification for flat glass.*

**Test Procedure:** Each test specimen was mounted within the test fixture, the film edges were captured by the specimen mounting clamps and impacted in accordance with DIN EN 12600:2002. The impact sides are identified herein as "glass-side" and "film-side". The test samples are considered asymmetric glazing but were impacted exclusively from the film-side only at the Clients request. The specimens were impacted from the lowest drop height and continued to next drop height as long as the specimen remained unbroken or, when broke, broke in accordance with the test performance requirements (DIN EN 12600, clause 4a). Unbroken specimens were used in next higher drop height. Specimens were impacted from the following drop heights:

Impact Classification:	3	2
Drop Height:	190 mm	450 mm

**Calibration:** The test rig was last calibrated in accordance with Annex B of EN 12600 on 3/28/15; per EN 12600 section B.4, the calibration shall be in effect for three years.

**Film-Side Test Results**

Impact Level	Spec. No.	Overall Thickness (mm)	Acceptance Criteria (grams)		Results & Observations After Impact (grams)		
			Total <sup>b</sup>	Single <sup>c</sup>	Total	Single	Observation <sup>a</sup>
3	1	5.90	142.22	62.59	NA	NA	Did not break
	3	5.97	143.96	63.35	NA	NA	Did not break
	4	5.93	142.96	62.92	NA	NA	Did not break
	6	5.91	142.46	62.70	NA	NA	Did not break
2	1	5.90	142.22	62.59	NA	NA	Break- no openings
	3	5.97	143.96	63.35	NA	NA	Did not break
	4	5.93	142.96	62.92	NA	NA	Break- no openings
	6	5.91	142.46	62.70	NA	NA	Did not break

Acceptance Criteria (Clause 4a)	<sup>a</sup> No openings develop that permit a 76 mm diameter sphere to pass when a maximum force of 25N (≈5.62 ft-lbs) is applied. <sup>b</sup> All detached particles shall weigh, in total, no more than a mass equivalent to 10,000 mm <sup>2</sup> of the original test piece. <sup>c</sup> No single fragment shall weigh more than 4,400 mm <sup>2</sup> of the original test piece.
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**Conclusion:** The product meets the impact requirements of EN 12600:2002 for performance classification **2 (B) 2**

**Classification:** Glazing conforming to this standard is classified as follows:

- Its performance under the impact test;
- The drop height at which breakage occurred;
- The drop height at which the product passed in accordance with clause 4a;
- The mode of breakage of the material if it remains unbroken after impact test.

The performance classification of a glass product is expressed as **α (β) φ**:

**α** - Denotes the highest drop height (impact classification) at which the product either did not break or broke in accordance with the applicable clauses of DIN EN 12600.

**β** - Denotes the mode of breakage.

**φ** - Denotes the highest height (impact classification) at which the product either did not break or when broke, broke in accordance with the test requirements (clause 4 a).



**Closing Statement:** Architectural Testing, Inc., an Intertek company ("Intertek-ATI"), will service this report for the entire test record retention period. Test records that are retained such as detailed drawings, datasheets, or other pertinent project documentation will be retained by Intertek-ATI for the entire test record retention period. All test specimens were destroyed by test or by our personnel and have been disposed of as trash.

Results obtained are tested values and were secured using the designated test methods. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimens tested. This report may not be reproduced, except in full, without the written approval of Intertek-ATI.

For INTERTEK-ATI:

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Todd M. Wilt  
Lead Technician

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### Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
0	03/29/17	N/A	Original report issue