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## CAN/ULC-S109 Flame Resistance of "CS Reflect"

A Report To: **Sunglow Window Coverings**  
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Submitted by: Exova Warringtonfire North America

Report No. 18-002-028(C)  
3 pages + Appendix

Date: January 24, 2018

**ACCREDITATION** To ISO/IEC 17025 for a defined Scope of Testing by the International Accreditation Service

### SPECIFICATIONS OF ORDER

Determine flame resistance in accordance with CAN/ULC-S109-14 Small-Flame and Large-Flame Tests, as per Exova Warringtonfire North America Quotation No. 17-002-532,002 dated November 22, 2017.

### SAMPLE IDENTIFICATION

Material described as, "CS Reflect fabric" and identified as, "CS Reflect".

(Exova sample identification number 18-002-S0028-3)

### TEST RESULTS

#### CAN/ULC-S109-14 Small-Flame Test

##### Standard Methods of Tests for Flame-Resistant Textiles and Films

Test Specimen	Damaged Length (mm)	Afterflame Time (s)	Flaming Dripping (s)	Result
1:	105	0.0	0.0	Pass
2:	111	0.0	0.0	Pass
3:	126	0.0	0.0	Pass
4:	105	0.0	0.0	Pass
5:	120	0.0	0.0	Pass
6:	110	0.0	0.0	Pass
7:	98	0.0	0.0	Pass
8:	102	0.0	0.0	Pass
9:	114	0.0	0.0	Pass
10:	132	0.0	0.0	Pass
Average:	112	0.0	-	Pass
Maximum Specified Average:	165	-	-	-
Maximum Specified Individual:	190	-	2.0	-

Test Notes: Tested: "as-received"

Measured Fabric Weight: 466 g/m<sup>2</sup>

**TEST RESULTS (continued)****CAN/ULC-S109-14 Large-Flame Test**Standard Methods of Tests for Flame-Resistant Textiles and Films

Test Specimen	Damaged Length (mm)	Afterflame Time (s)	Flaming Dripping (s)	Result
1:	22	0.0	0.0	Pass
2:	127	0.0	0.0	Pass
3:	72	0.0	0.0	Pass
4:	32	0.0	0.0	Pass
5:	22	0.0	0.0	Pass
6:	77	0.0	0.0	Pass
7:	22	0.0	0.0	Pass
8:	22	0.0	0.0	Pass
9:	32	0.0	0.0	Pass
10:	52	0.0	0.0	Pass
Maximum Specified Individual:	250	-	2.0	-

Test Notes: Tested "as-received" and in flat sheet configuration.  
Measured Fabric Weight: 466 g/m<sup>2</sup>

**CONCLUSIONS**

When tested "as-received", the material identified in this report meets the flame resistance requirements of CAN/ULC-S109-14.



Serap Carpino,  
Technologist



Ian Smith,  
Technical Manager.

Note: This report and service are covered under Exova Canada Inc. Standard Terms and Conditions of Contract which may be found on the Exova website ([www.exova.com](http://www.exova.com)), or by calling 1-866-263-9268.

**APPENDIX**

(1 Page)

**Summaries of Test Procedures**

**CAN/ULC-S109-14**

Standard Methods of Tests for Flame-Resistant Textiles and Films

**Small-Flame Test**

10 specimens, each 70 mm x 250 mm are cut, with 5 in the warp (machine) direction and 5 in the weft (cross) direction, where applicable. The specimens are conditioned for 30 minutes at 105°C, or if they melt or distort at these temperatures, they are conditioned at 18 to 22°C and 50% R.H. for at least 12 hours, or by drying in an oven for 1 hour at 60°C.

Each specimen is removed from the conditioning chamber individually, clamped in a U-shaped metal holder and suspended in a specified cabinet. The free edge of the specimen is positioned 20 mm above the tip of a gas burner which has been adjusted to yield a flame height of 40 mm. Flame exposure time is 12 seconds. Char length and afterflame time are measured.

Flame Resistance Requirements (Reference: Clause 6.2)

Maximum Average Damaged Length or Destroyed Material (10 specimens)	Maximum Damaged Length or Destroyed Material for any Individual Specimen	Maximum Flaming Time for Residue on Floor of Tester
165 mm	190 mm	2.0 seconds

**Large-Flame Test**

If the material can be hung in natural folds, 4 specimens, each 625 mm wide x 750 mm long are cut, with 2 in the warp (machine) direction and 2 in the weft (cross) direction, where applicable. If the material cannot be folded, or otherwise does not meet the criteria to be tested in folds, then 10 specimens, each 125 x 750 mm are cut, with 5 in the warp (machine) direction and 5 in the weft (cross) direction.

Specimens are conditioned at 105 ± 2°C for 30 minutes or, if distortion or melting occurs at these temperatures, then they are conditioned at 20 ± 2°C, and at 25 - 50% relative humidity for at least 12 hours, or by drying in an oven for 1 hour at 60°C.

The specimens are removed from the conditioning chamber and suspended in the test apparatus, which is comprised of a 310 mm square by 2130 mm high steel stack. The stack is open at the top and bottom and is supported 300 mm above the floor. For conducting flame tests on fabrics hung in folds, each specimen is folded longitudinally to form four folds. For conducting flame tests on flat sheets, each specimen is hung so that the widest surface faces the test flame.

In either configurations, the lower edge of the specimen is positioned 100 mm above the top of a gas burner which is inclined at 25° to the vertical. The burner, which has been adjusted to yield a flame 280 mm in height is ignited and inserted directly beneath the specimen for a period of 2 minutes. Char length is measured from the tip of the flame, upwards.

Flame Resistance Requirements (Reference Clause 6.3):

	Maximum Char Length or Damaged Material Length (mm)	Maximum Flaming Time for Residue on Floor of Tester (s)
Folded	635	2.0
Single sheets	250	2.0

*Flame-resistant fabrics and films shall comply with the performance requirements of both the Small-Flame and the Large-Flame Test.*