

**CAN/ULC-S109 Flame Resistance
of "FRU88X-6" Fabric**

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2 pages + 1 page appendix

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ACCREDITATION Standards Council of Canada, Registration #1.**REGISTRATION** ISO 9002-1994, registered by QMI, Registration #001109.**SPECIFICATIONS OF ORDER**

Determine flame resistance in accordance with the CAN/ULC-S109-M87 Small and Large Flame Tests, as per your P.O. # P008983.

IDENTIFICATION

Woven polyolefin fabric identified as "FRU88X-6", 4 mil.

(Bodycote Ortech Inc. identification number 00-02-S0330-1)

TEST RESULTS**CAN/ULC-S109 Small-Flame Test**

Tested "as-received"

| | Damaged Length (mm) | Flaming Dripping (s) | Afterflame Time (s) | |
|--|---------------------|----------------------|---------------------|--------------|
| Machine 1: | 136 | 0.0 | 0.0 | |
| 2: | 124 | 0.0 | 1.0 | |
| 3: | 135 | 0.0 | 0.0 | |
| 4: | 135 | 0.0 | 0.0 | |
| 5: | 122 | 0.0 | 0.0 | |
| Cross 6: | 123 | 0.0 | 0.0 | |
| 7: | 116 | 0.0 | 1.0 | |
| 8: | 121 | 0.0 | 0.0 | |
| 9: | 90 | 0.0 | 0.0 | |
| 10: | 115 | 0.0 | 0.0 | |
| Average: | 122 | | | |
| Maxima Specified by ULC-S109 Small Flame Test: | 165 | - | - | (average) |
| | 190 | 2.0 | - | (individual) |

TEST RESULTS (Cont.)

CAN/ULC-S109 Large Flame Test

Tested "as-received" and in single sheet configuration.

| | <u>Damaged Length (mm)</u> | <u>Flaming Dripping (s)</u> | <u>Afterflame Time (s)</u> |
|----------|----------------------------|-----------------------------|----------------------------|
| 1: | 75 | 0.0 | 0.0 |
| 2: | 50 | 0.0 | 0.0 |
| 3: | 60 | 0.0 | 0.0 |
| 4: | 135 | 0.0 | 0.0 |
| 5: | 90 | 0.0 | 0.0 |
| 6: | 40 | 0.0 | 0.0 |
| 7: | 35 | 0.0 | 0.0 |
| 8: | 70 | 0.0 | 0.0 |
| 9: | 50 | 0.0 | 0.0 |
| 10: | <u>70</u> | 0.0 | 0.0 |
| Average: | 68 | | |

| Maxima Specified by ULC-S109 Large Flame Test: | 250 | - | - | (average) |
|--|-----|-----|---|--------------|
| | - | 2.0 | - | (individual) |

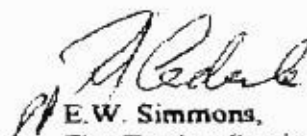
(Above tip of test flame)

CONCLUSIONS

When tested in the as-received condition, the polyolefin fabric identified in this report meets the flammability requirements of the Small and Large-Flame Tests of CAN/ULC-S109.



M. Garces,
Fire Testing Services.



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This report refers only to the particular samples, units, material, instrument, or other subject used and referred to in it, and is limited by the tests and/or analyses performed. Similar articles may not be of like quality, and other testing and/or analysis programs might be desirable and might give different results.

APPENDIX

(1 Page)

Summaries of Test Procedures

CAN/ULC-S109-M87

Standard Methods of Tests for Flame-Resistant Textiles and Films

Small-Flame Test

Ten specimens are cut, each 70 x 250 mm, with five in the warp direction and five in the weft direction, where applicable. The specimens are conditioned for 30 minutes at 105°C, or if they melt or distort at these temperatures, 18 - 22°C at 50% R.H. for at least 12 hours.

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:

| | |
|---|---|
| Maximum Average Length of Char or Destroyed Material for <u>Ten Specimens</u> | Maximum Length of Char or Destroyed Material for any <u>Specimens</u> |
| 165 mm | 190 mm |

The specified maximum flaming time for residue on the floor of the tester from any specimen is 2.0 seconds.

Large-Flame Test

For conducting flame tests of fabrics in single sheets, the procedure specifies ten specimens, 125 mm by 750 mm to 2100 mm long. The specimens are conditioned at 105 ± 2°C for 30 minutes or, if distortion or melting occurs at these temperatures, 20 ± 2°C at 25 - 50% relative humidity for at least 12 hours.

Each specimen is removed from the conditioning chamber and cooled in a desiccator prior to being suspended in a steel stack 310 mm square and 2130 mm high, the said stack being open both top and bottom and supported 300 mm above the floor. The lower edge of the specimen is positioned 100 mm above the tip 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 2 minutes. Char length is measured from the tip of the flame, upwards.

For conducting flame tests of fabrics hung in folds, at least four specimens 625 mm by 750 mm to 2100 mm are required. Each specimen is folded longitudinally to form four folds.

Flame Resistance Requirements - Specified Maxima:

| <u>Specimen Configuration</u> | <u>Char Length or Damaged Material Length (mm)</u> | <u>Flaming Residue on Floor of Tester (s)</u> |
|-------------------------------|--|---|
| Single sheets | 250 | 2.0 |
| Folded | 635 | 2.0 |