CAPITAL TESTING AND CERTIFICATION SERVICES
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# TEST REPORT

**Test Method:** CAN/ULC-S102.2:2018-REV1, Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies

**Rendered To:** Frasch, LLC
1425 Avenue R
Grand Prairie, TX 75050

**Product Description:** PET Acoustic Felt – Dark Gray

**Report Number:** T-16861

**Original Issue Date:** 09/23/2022

**Test Date:** 09/15/2022

**Pages:** 9

IAS ACCREDITED Testing Laboratory
TL-224

## I. SCOPE

This test report contains the results from a specimen tested in accordance with CAN/ULC-S102.2, *Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies*. The results of CAN/ULC-S102.2 testing are commonly used by building code officials and regulatory agencies to determine whether interior finish materials are suitable for their intended application.

## II. TEST SPECIMENS

Test specimens should be representative of the material which the test is intended to examine. All test specimens should be approximately 10mm narrower than the interior width of the tunnel and 7315 ± 15 mm in length. The maximum allowable thickness is 65mm. The test specimen can be provided in a continuous, unbroken length or multiple sections that will be butted together. Prior to testing, the specimens are conditioned to a constant mass in an environment that is held at 23 ± 3 °C (73.4 ± 5.4 °F) and 50 ± 5% relative humidity.

| TEST SPECIMEN INFORMATION | |
|---|---|
| Product Description | PET Acoustic Felt; Nominal Thickness: 9mm.* |
| Samples Selected By | Client |
| Date Received | 09/01/2022 |
| Conditioning Time | 14 |
| Specimen Size (in.) | 23-3/4 x 17-1/2 |
| Continuous / Sectioned | Sectioned |
| Number of Sections | 12 |
| Avg. Total Weight (lbs.) | 18.4 |
| Average Thickness (in.) | 0.362 |
| Color | Dark Gray* |
| Exposed Surface | Both Sides Equivalent |
| Mounting Method | Laid on the tunnel floor and panels were butted end-to-end. |

* Information provided by the Client

## III. PROCEDURE

The tunnel is preheated to 85 ± 5 °C (185 ± 9 °F) as measure by a thermocouple embedded in the backwall of the furnace at 7090 mm (23.3 ft) from the centerline of the burner. The tunnel is then cooled to 40 ± 3 °C (104 ± 5.4 °F) as measured by a thermocouple embedded in the backwall of the furnace at 4000 mm (13.1 ft) downstream of the centerline of the burner.

After the tunnel has cooled to required temperature range, the tunnel lid is lifted, and the test specimen is placed on the ledges of the tunnel. The specimen is mounted in a ceiling orientation with the side that will be exposed to the flame facing downward. A 6 mm (0.25 in.) fiber-cement board is placed on the backside of the specimens to protect the tunnel lid during testing.

Once the sample has been loaded into the test chamber, the lid is lowered, and a 1.2 ± 0.025 m/s (236.2 ± 4.9 ft/min) airflow is established. The test specimen is preheated for approximately 2 minutes prior to applying the 90 kW burner. The burner is positioned at the front end of the tunnel. It has two ports that point downward at a 45° angle toward the face of the specimen. An air ramp is placed at the front end of the specimen to reduce air eddies and to prevent low density material from being blown away from the burner.

After the 2-minute preheat, the burner is ignited, and it remains on for the duration of the 10-minute test. The flame is tracked by an observer, referred to as the Reader, as it progresses down the length of the tunnel. Smoke density is measured with the use of the photometer system on the exhaust duct. Temperature data is recorded throughout the test by a thermocouple probe that is 7000 mm (23 ft) from the centerline of the burner and approximately 25mm (1 in.) below the upper ledges of the tunnel.

## IV. CALCULATION OF RESULTS

In CAN/ULC-S102 testing, test results for individual burns are reported as Flame Spread Value (FSV) and Smoke Developed Value (SDV). The average indices, that are derived from a minimum of three individual burns, are reported as Flame Spread Rating (FSR) and Smoke Developed Classification (SDC).

The Flame Spread Value is derived by plotting the flame spread distance versus time. Only progressive flame spread is plotted. The total area ($A_T$) under the flame spread distance-time plot is determined by ignoring any flame front recession. The calculation of FSV is described below:

When $A_T \leq 29.7$ m•min: $FSI = 1.85 * A_T$

When $A_T > 29.7$ m•min: $FSI = 1640/(59.4 - A_T)$

The Smoke Developed Value is derived by plotting the photoelectric cell readings versus time. The area under the curve for the tested material is then divided by the area under the curve for select-grade red oak flooring. The resulting value is then multiplied by 100.

The Flame Spread Rating is determined by averaging a minimum of three individual Flame Spread Values and rounding that average to the nearest multiple of 5. The Smoke Developed Classification is determined by averaging a minimum of three individual Smoke Developed Values and rounding that average to the nearest multiple of 5.

## V. DISCUSSION

**CAN/ULC-S102.2 Standard Language and Disclaimers**

The following language was taken directly from the CAN/ULC-S102.2 standard. It has been included for information purposes.

*Smoke Developed Value (SDV) and Flame Spread Value (FSV) are recorded in this test. However, there is not necessarily a relationship between these two measurements.* – CAN/ULC-S102.2:2018-REV1, Section 1.4

*This method defines the relative surface burning characteristics under specified test conditions. Although the procedure is applicable to materials, products and assemblies used in building construction for development of comparative surface spread of flame data, test results may not reflect the relative surface burning characteristics of tested materials under all building fire conditions.* – CAN/ULC-S102.2:2018-REV1, Section 3.1

*The "fire hazard" of any material in the light of present knowledge cannot be evaluated on the basis of any one test. A body of tests, each measuring one or more characteristics of a material, product, or assembly, may be needed for full assessment. These assessments are intended as aids to those who have the responsibility for determining acceptable levels of potential hazard. The overall fire hazard of a material as it is to be used can only be determined by an analysis of its behavior under several test conditions in addition to further analysis which includes consideration of building construction, occupancy, location and fire protection features.* – CAN/ULC-S102.2:2018-REV1, Section 3.2

## VI. TEST RESULTS

| FLAME SPREAD RATING (FSR) | SMOKE DEVELOPED CLASSIFICATION (SDC) |
|---|---|
| **15** | **245** |

| | |
|---|---|
| Test Start Date | 09/14/2022 |
| Test End Date | 09/15/2022 |
| Equipment Operator | Chris Kaiser |
| Flame Spread Reader | Chris Palumbo |

| | Burn #1 | Burn #2 | Burn #3 |
|---|---|---|---|
| Ignition Time (s) | 22 | 146 | 159 |
| Flame Spread Value (FSV) | 14 | 9 | 16 |
| Smoke Developed Value (SDV) | 240 | 226 | 264 |
| Maximum Temperature (°C) | 351 | 332 | 362 |
| Maximum Temperature (°F) | 664 | 629 | 683 |
| Time to Maximum Temperature (min) | 7.57 | 8.32 | 7.44 |
| Maximum Flame Spread Distance (m) | 1.95 | 1.47 | 2.16 |
| Maximum Flame Spread Distance (ft) | 6.40 | 4.82 | 7.09 |
| Time to Maximum FS Distance (min) | 8.39 | 9.27 | 7.72 |

## VII. OBSERVATIONS

**During Test**
All Burns: None.

**After Test**
Burn 1: Sample material melting and charring on the tunnel floor to 8'. Melting of the exposed sample material surface to 18'. Discoloration of the exposed sample material surface to 24'. Curling upwards of the sample material panel edges from 10' to 22'.

Burn 2: Sample material charring on the tunnel floor to 8'. Sample material melting on the tunnel floor to 12'. Melting of the exposed sample material surface to 18'. Discoloration of the exposed sample material surface to 24'. Curling upwards of the sample material panel edges from 12' to 20'.

Burn 3: Sample material charring on the tunnel floor to 10'. Sample material melting on the tunnel floor to 14'. Melting of the exposed sample material surface to 18'. Discoloration of the exposed sample material surface to 24'. Curling upwards of the sample material panel edges from 14' to 20'.

Note: Reported observation distances are relative to the entire length of the test specimen.

## VIII. REMARKS

The test samples left an oily residue on the spacers that are used to separate the panels during the conditioning process. The same oily residue was also transferred to technicians' gloves after handling the test samples.

## IX. GRAPHS AND INDIVIDUAL BURN DATA

| Test Method | Project # | Date | Time (Test Start) | Test No. |
|---|---|---|---|---|
| ULC S102.2 | T16861 | 15 Sep 2022 | 1:25 PM | 1 |

Specimen ID: PET Acoustic Felt - Dark Gray

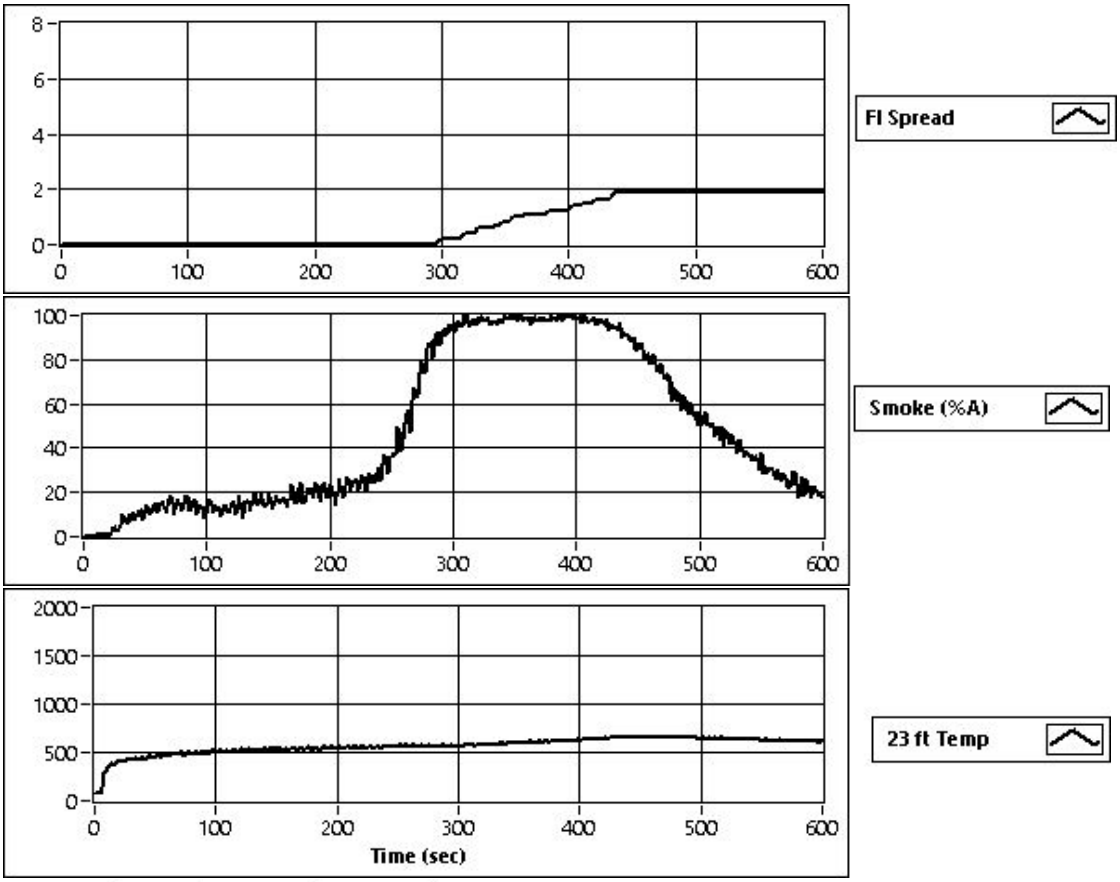
Specimen Description: Nominal Thickness: 9mm

Mounting Procedure: Sample material laid on the tunnel floor.

| Fuel (CF) | Time to 980F (min) | Max Temp (F) | Time to Max Temp (min) |
|---|---|---|---|
| 46.9 | 0 | 663.8 | 7.573 |

| FS Area | Maximum FS | MAX FS Time (min) |
|---|---|---|
| 7.577 | 1.95 | 8.39 |

| Smoke Area (%A min) | Calibration Smoke Area | Raw SD | Raw FSI |
|---|---|---|---|
| 475 | 197.7 | 240.2 | 14.017 |




| Final FSI | Final SD |
|---|---|
| 14 | 240 |

Test Room Temperature (°F): 72.5 Test Room Humidity (%RH): 46.3

**Note: Distances on this page are reported in meters.**

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| Test Method | Project # | Date | Time (Test Start) | Test No. |
|---|---|---|---|---|
| ULC S102.2 | T16861 | 15 Sep 2022 | 4:31 PM | 2 |

Specimen ID: PET Acoustic Felt - Dark Gray

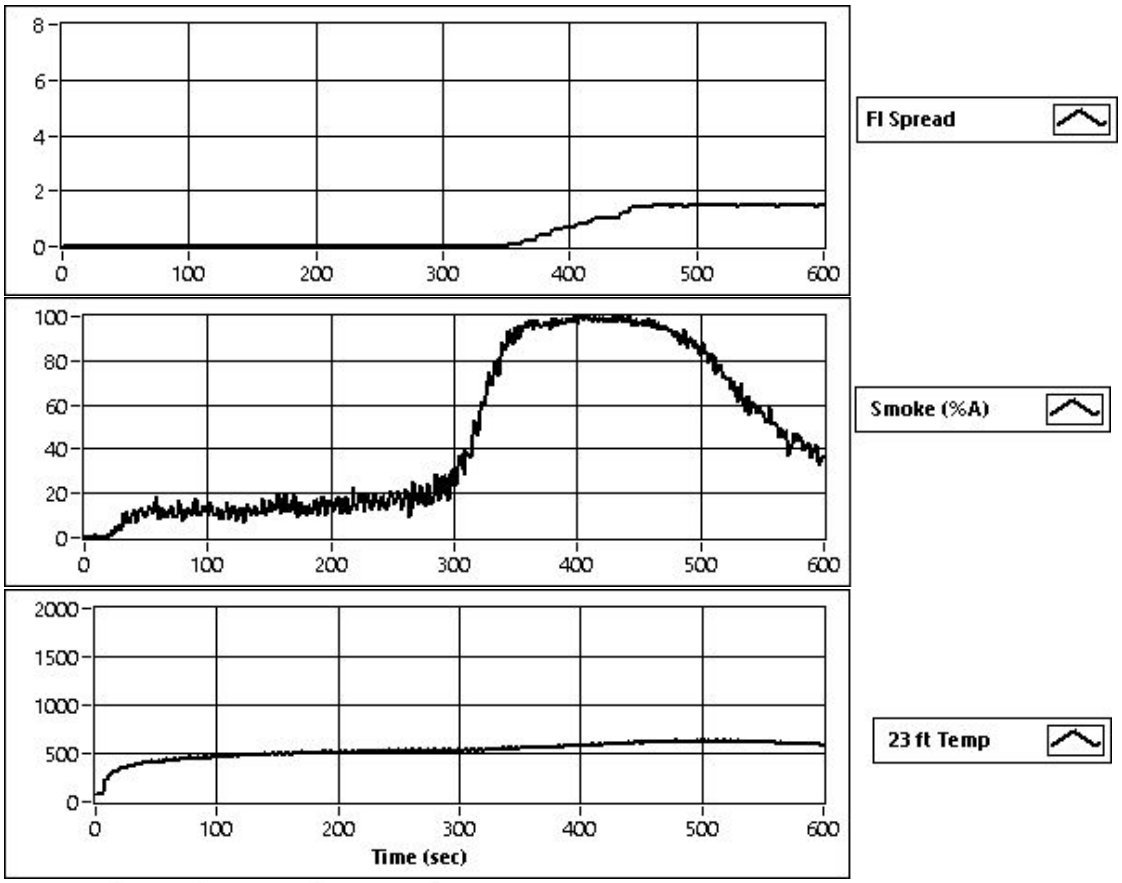
Specimen Description: Nominal Thickness: 9mm

Mounting Procedure: Sample material laid on the tunnel floor.

| Fuel (CF) | Time to 980F (min) | Max Temp (F) | Time to Max Temp (min) |
|---|---|---|---|
| 46.8 | 0 | 629 | 8.322 |

| FS Area | Maximum FS | MAX FS Time (min) |
|---|---|---|
| 4.795 | 1.47 | 9.27 |

| Smoke Area (%A min) | Calibration Smoke Area | Raw SD | Raw FSI |
|---|---|---|---|
| 447.1 | 197.7 | 226.1 | 8.871 |




| Final FSI | Final SD |
|---|---|
| 9 | 226 |

Test Room Temperature (°F): 74.3 Test Room Humidity (%RH): 45.7

**Note: Distances on this page are reported in meters.**

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| Test Method | Project # | Date | | | | |
|---|---|---|---|---|---|---|
| ULC S102.2 | T16861 | 16 Sep 2022 | Time (Test Start) | 11:34 AM | Test No. | 3 |

Specimen ID

PET Acoustic Felt - Dark Gray

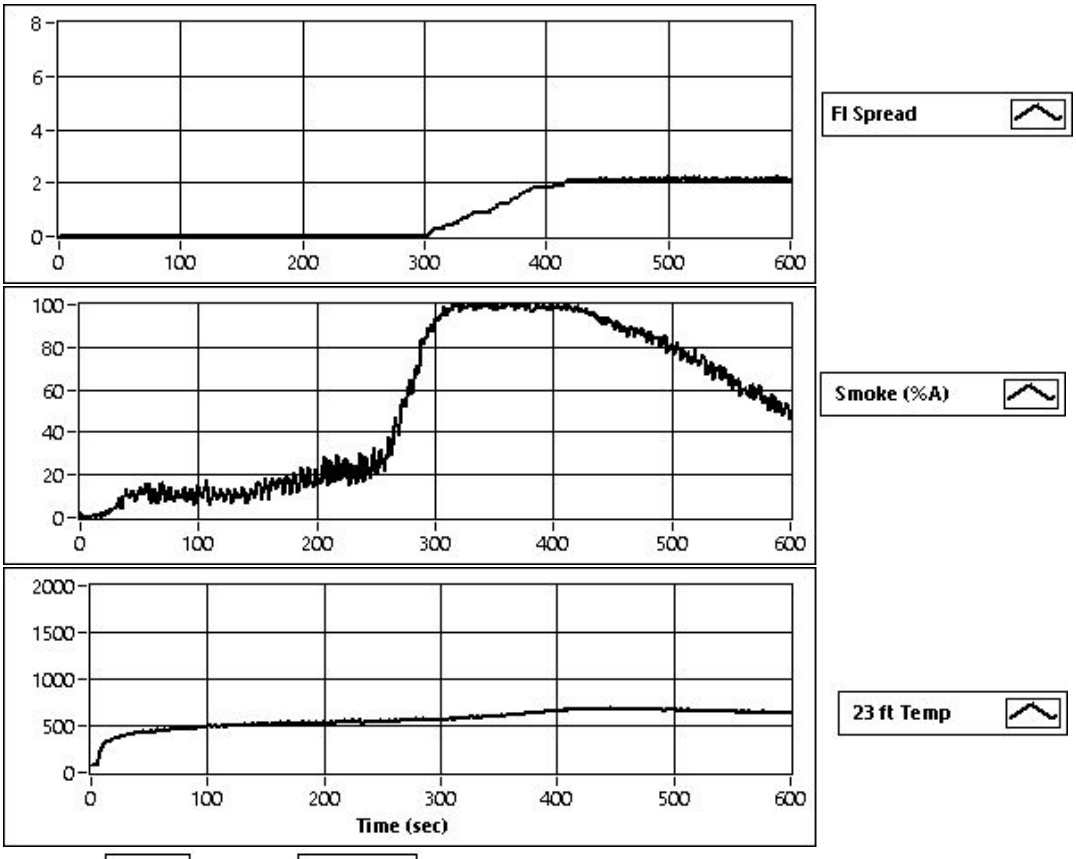
Specimen Description

Nominal Thickness: 9mm

Mounting Procedure

Sample material laid on the tunnel floor.

| Fuel (CF) | 46.7 | Time to 980F (min) | 0 | Max Temp (F) | 683 | Time to Max Temp (min) | 7.441 |
|---|---|---|---|---|---|---|---|
| FS Area | 8.721 | Maximum FS | 2.16 | MAX FS Time (min) | 7.72 | | |
| Smoke Area (%A min) | 521.7 | Calibration Smoke Area | 197.7 | Raw SD | 263.8 | Raw FSI | 16.134 |




| Final FSI | 16 | Final SD | 264 |
|---|---|---|---|

Test Room Temperature (°F): 72.8 Test Room Humidity (%RH): 46.1

**Note: Distances on this page are reported in meters.**

## X. AUTHORIZED SIGNATURES

**Report Written By:**

Chris Kaiser
Lab Technician II

09/23/2022
Date

**Reviewed and Approved By:**

Chris Palumbo
Sr. Manager of Product Testing

09/23/2022
Date

## XI. REVISION HISTORY

| Revision Number | Date | Summary |
|---|---|---|
| 0 | 09/23/2022 | Original Report Issued |
| | | |
| | | |
| | | |
| | | |

## XII. ACCREDITATION

Capital Testing and Certification Services is an ISO/IEC 17025 accredited testing laboratory whose scope includes CAN/ULC S102.2. Accrediting Body: International Accreditation Service, Inc. (IAS). Testing Laboratory TL-224.