

EASTMAN PERFORMANCE FILMS, LLC. FIRE TEST REPORT

SCOPE OF WORK

ASTM E84 TESTING ON LLUMAR SCL SR PS7

REPORT NUMBER

H7867.03-121-24

TEST DATE

01/23/18

ISSUE DATE

02/12/18

REVISION DATE

06/20/18

RECORD RETENTION END DATE

01/23/22

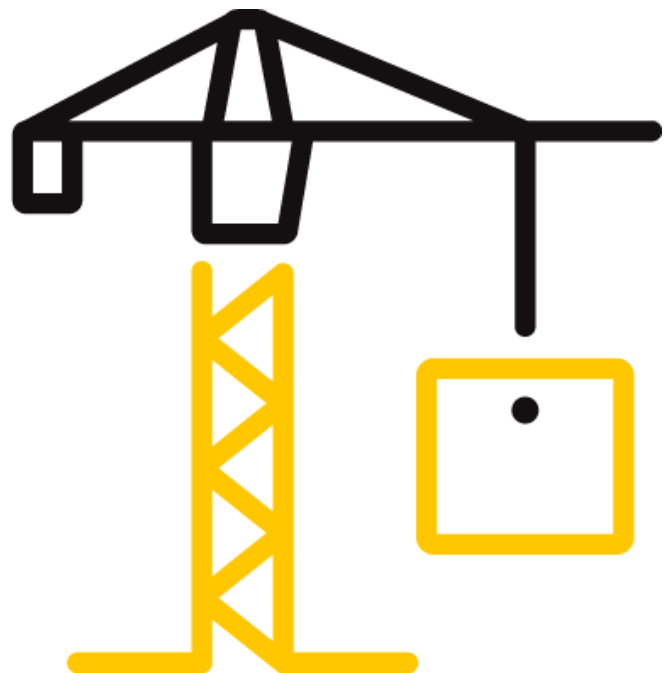
PAGES

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DOCUMENT CONTROL NUMBER

RT-R-AMER-Test-2780 (10/18/17)

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TEST REPORT FOR EASTMAN PERFORMANCE FILMS, LLC.

Report No.: H7867.03-121-24

Date: 02/12/18

Revision Date: 06/20/18

REPORT ISSUED TO

EASTMAN PERFORMANCE FILMS, LLC.

4210 The Great Road

Fieldale, Virginia 24089

SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted by Eastman Performance Films, LLC., Fieldale, Virginia, to evaluate the flame spread and smoke developed properties of LLumar SCL SR PS7. Testing was conducted at the Intertek B&C test facility in York, Pennsylvania. Results obtained are tested values and were secured by using the designated test method(s). A summary of test results and the complete graphical test data is reported herein.

This report does not constitute performance certification of this product nor an opinion or endorsement by this laboratory.

SECTION 2

SUMMARY OF TEST RESULTS

Specimen I.D.: LLumar SCL SR PS7 by Eastman Performance Films, LLC.

ASTM E84 Test Results

| FLAME SPREAD INDEX | SMOKE DEVELOPED INDEX |
|--------------------|-----------------------|
| 0 | 35 |

For INTERTEK B&C:

| | | | |
|----------------------|---------------------------|---------------------|------------------------|
| COMPLETED BY: | Ben Samson | REVIEWED BY: | Ethan Grove |
| TITLE: | Technician – Fire Testing | TITLE: | Manager – Fire Testing |
| SIGNATURE: | | SIGNATURE: | |
| DATE: | 06/20/18 | DATE: | 06/20/18 |

BTS:ddr

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SECTION 3

TEST METHOD

The specimens were evaluated in accordance with the following:

ASTM E84-17a, *Standard Test Method for Surface Burning Characteristics of Building Materials*

SECTION 4

MATERIAL SOURCE/INSTALLATION

The test specimen was submitted to Intertek directly from the client. Samples were not independently selected for testing. Intertek has not verified the composition, manufacturing techniques or quality assurance procedures. The specimens, identified as LLumar SCL SR PS7 by Eastman Performance Films, LLC., were received in good order.

SECTION 5

LIST OF OBSERVERS

| NAME | COMPANY |
|----------------|--------------|
| Ben Samson | Intertek B&C |
| Nate Brillhart | Intertek B&C |

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SECTION 6

TEST PROCEDURE

This report describes the results of testing conducted in accordance with ASTM E84-17a; Standard Test Method for Surface Burning Characteristics of Building Materials. The test method is for comparative surface burning behavior of building materials by determining a flame spread index (FSI) and a smoke developed index (SDI). This test is generally applicable to exposed surfaces, such as finish materials for ceilings or walls, provided that the material or assembly of materials, by its own structural quality or the manner in which it is tested and intended for use, is capable of supporting itself in position or being supported during the test period.

“The use of supporting materials on the underside of the test specimen may lower the flame spread index from that which might be obtained if the specimen could be tested without such support. This method may not be appropriate for obtaining comparative surface burning behavior of some cellular plastic materials. Testing of materials that melt, drip, or delaminate to such a degree that the continuity of the flame front is destroyed, results in low flame spread indices that do not relate directly to indices obtained by testing materials that remain in place.” – ASTM E84-17a Section 1.3

The purpose of the method is to determine the relative burning behaviour of the material by observing the flame spread along the specimen. Flame spread and smoke density developed are reported, however, there is not necessarily a relationship between these two measurements.

It is the expressed intent of the test method to provide only comparative measurements of surface flame spread and smoke density of the tested material against measurements for select grade red oak flooring and fiber-cement board when tested under specific fire exposure conditions. The test method exposes a nominal 24-ft (7.32-m) long by 20-in. (508-mm) wide test specimen to a controlled air flow and flaming fire exposure adjusted to produce a specific flame spread distance vs time calibration using select grade red oak flooring.

The test method does not provide information regarding heat transmission through the tested surface, the effect of aggravated flame spread behavior resulting from the proximity of combustible walls and ceilings, or the classification or definition of materials as non-combustible using flame spread index alone.

This standard should be used to measure and describe the properties of materials, products, or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products, or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment which takes into account all of the factors which are pertinent to an assessment of the fire hazard of a particular end use.

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There were no deviations from the requirements prescribed in ASTM E84.

SECTION 7

TEST SPECIMEN DESCRIPTION

| | |
|--------------------------|---|
| MANUFACTURER* | Eastman Performance Films, LLC. |
| PRODUCT TYPE* | Safety/security film |
| SERIES/MODEL* | LLumar SCL SR PS7 |
| COMPOSITION* | Glass, film |
| CONDITIONING TIME | 72+ hr. |
| SPECIMEN SIZE | 24 in. wide x 36 in. long |
| THICKNESS | 0.13 in. |
| SPECIMEN SECTIONS | 8 |
| TOTAL WEIGHT | 9.9 lbs. |
| COLOR | Clear |
| SIDE TO FLAME* | Client specified film face |
| SUPPORT USED* | Material was self-supporting |
| MOUNTING METHOD | Material was self-supporting |
| SUBSTRATE USED* | No substrate was utilized |
| CEMENT BOARD | 1/4 in. thick fiber cement board was placed on top of the sample. |

*From the client's material description and/or instructions

Note: Specimens were conditioned as per the requirements of Section 6.4 of ASTM E84.

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SECTION 8

TEST RESULTS

| TEST RESULTS | |
|-------------------------------|------------|
| Test Date | 01/23/18 |
| Test Operator | Ben Samson |
| Flame Spread Index (FSI) | 0 |
| Smoke Developed Index (SDI) | 35 |
| Red Oak Calibration (% * Min) | 91.14 |

| TEST DATA | |
|---------------------------|--------|
| FSI (unrounded) | 1.9 |
| SDI (unrounded) | 35.0 |
| FS * Time Area (Ft * Min) | 3.6 |
| Smoke Area (% * Min) | 31.9 |
| Fuel Area (°F * Min) | 4797.8 |

| TEST OBSERVATIONS | |
|-----------------------------|-----------------|
| Ignition Time | 00:46 (Min:Sec) |
| Max Flame Front Advance | 1.2 Feet |
| Time to Max Flame Front | 07:08 (Min:Sec) |
| Max Temp At Exposed T/C | 563.7°F |
| Time To Max Temp | 08:35 (Min:Sec) |
| Dripping Observed | 00:44 (Min:Sec) |
| Flaming On Floor Observed | 00:55 (Min:Sec) |
| After Flame Top Observed | None |
| After Flame Floor Observed | None |
| Sagging Observed | None |
| Delamination Observed | None |
| Shrinkage Observed | None |
| Fallout Observed | 00:47 (Min:Sec) |
| Cracking Observed | 00:52 (Min:Sec) |
| Observations After the Test | None |

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SECTION 9

PHOTOGRAPHS



Photo No. 1
Exposed Surface of the Test Specimen (Pre-test)



Photo No. 2
Unexposed Surface of the Test Specimen (Pre-test)

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SECTION 9 (Continued)

PHOTOGRAPHS



Photo No. 3
Unexposed Surface of the Test Specimen (Post-test)

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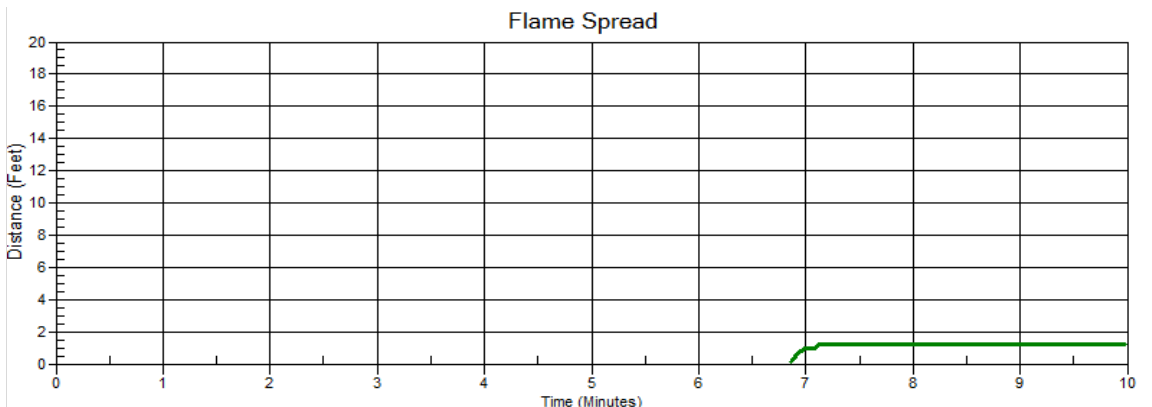
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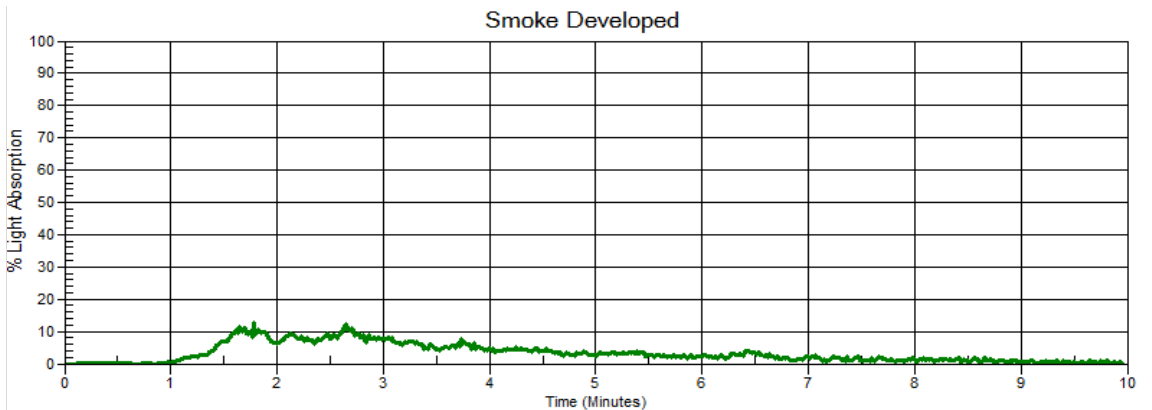
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SECTION 10

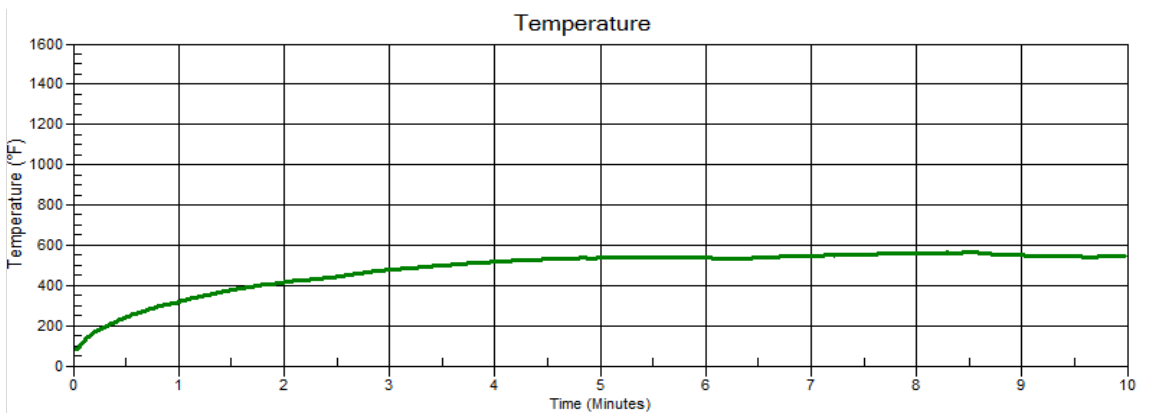
GRAPHS



Graph No. 1 - Flame Spread Distance Versus Time



Graph No. 2 - Light Obscuration Versus Time



Graph No. 3 - Tunnel Air Temperature Versus Time

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SECTION 11

REVISION LOG

| REVISION # | DATE | PAGES | REVISION |
|------------|----------|--------|---|
| 0 | 02/12/18 | N/A | Original Report Issue |
| 1 | 06/20/18 | 1-10 | Name change from Eastman Chemical Company to Eastman Performance Films, LLC. |
| 1 | 06/20/18 | 1-3, 5 | Model name change from SCL SR PS7 to LLumar SCL SR PS7 |
| 1 | 06/20/18 | 2 | Address change from 100 Eastman Road, Kingsport, Tennessee 37662 to 4210 The Great Road, Fieldale, Virginia 24089 |