

**DRAFT**

**ASTM E662 TESTING  
FOR  
TEMP-COAT BRAND PRODUCTS L.L.C.  
ON  
TEMP-COAT 101  
VTEC #100-4890-4  
TESTED: APRIL 2, 2015**



DRAFT

# VTEC Laboratories Inc.

April 3, 2015

**Client:** TEMP-Coat Brand Products L.L.C.  
17351 Hard Hat Row, Unit B 18  
Covington, LA 70435

**Attention:** Morris Meyer

## **I. INTRODUCTION:**

The following Scope, Summary of Method, Test Specimens, and Specimen Conditioning sections are abridged from the Standard Test Method for Specific Optical Density of Smoke Generated by Solid Material- ANSI/ASTM E662.

## **II. SCOPE:**

The method of test covers a procedure for measuring the smoke generated by solid materials and assemblies in thickness up to and including one inch. The test is based on the attenuation of a light beam by smoke accumulating within a closed chamber. Both non-flaming and flaming exposures are conducted. Results are expressed in terms of specific optical density, which is derived from measuring optical density (absorbance).

The photometric scale used to measure smoke by this method is similar to the optical density scale for human vision.

The test is intended for use in research and development and not as a basis for ratings for regulatory purposes. At the present time, no means are provided for predicting the density of smoke, which may be generated by the materials exposed to heat and flame under other fire conditions.

NOTICE: VTEC Laboratories Inc. will not be liable for any loss or damage resulting from the use of the data in this report, in excess of the invoice. This report pertains to the sample tested only. Such report shall not be interpreted to be a warranty, either expressed or implied as to the suitability of fitness of said sample for such uses or applications, as the party contracting for the report may apply such sample.

### **III. SUMMARY OF METHOD:**

This method employs an electrically-heated radiant energy source mounted within an insulated ceramic tube and positioned so as to produce an irradiance level of 2.2 BTU/sec. Ft<sup>2</sup> (2.5 w/cm<sup>2</sup>) averaged over the central 1.5" diameter area of a vertically mounted specimen facing the radiant heater. The nominal 3" X 3" specimen is mounted within a holder, which exposes an area 2-9/16" X 2-9/16". The holder can accommodate specimens up to one inch thick. This exposure provides the non-flaming exposure of the test.

For the flaming condition, a six-tube burner is used to apply a row of air-propane flamelets across the lower edge of the exposed specimen area and into the specimen holder trough. The application of flame in addition to the specified irradiance level from the heating element constitutes the flaming combustion exposure.

The test specimens are exposed to the flaming and non-flaming conditions within a closed 18 cubic foot chamber. A photometric system with a 36" vertical light path measure the continuous decrease in light transmission as smoke accumulates.

### **IV. TEST SPECIMENS:**

The test specimens measure 3" X 3"  $\pm$  0.03" and can be up to 1" thickness, depending on the particular sample thickness. Materials in thicknesses over 1" in thickness are sliced to 1" and the original uncut surface is tested. Multi-layer materials thicker than 1" with surface facings of different materials are sliced to 1", and each original (uncut) surface tested separately, if both surface facings are exposed to the fire.

### **V. SPECIMEN CONDITIONING:**

Specimens are predried for 24 hours at 140°  $\pm$  5°F (60°  $\pm$  3° C) and then conditioned to equilibrium (constant weight) at an ambient temperature of 73°  $\pm$  5°F(23°  $\pm$  3°C) and a relative humidity of 50  $\pm$  5 percent.

### **VI. DISCLAIMER:**

*This test result alone does not assess the fire hazard of the material, or a product made from this material, under actual fire conditions. Consequently, the results of this test alone are not to be quoted in support of claims with respect to the fire hazard of the material or product under actual fire conditions. The results when used alone are only to be used for research and development, quality control and material specifications.*

**TEST DATA: LIGHT TRANSMITTANCE**

| TEST:              | NON-FLAMING    |                |               | FLAMING       |               |               |
|--------------------|----------------|----------------|---------------|---------------|---------------|---------------|
| <u>Time (min.)</u> | <u>Test #1</u> | <u>Test #2</u> | <u>Test#3</u> | <u>Test#4</u> | <u>Test#5</u> | <u>Test#6</u> |
| 0.0                | 100.00%        | 100.00%        | 100.00%       | 100.00%       | 100.00%       | 100.00%       |
| 0.5                | 100.00%        | 100.00%        | 100.00%       | 99.62%        | 99.51%        | 99.89%        |
| 1.0                | 100.00%        | 99.53%         | 100.00%       | 99.62%        | 99.51%        | 99.01%        |
| 1.5                | 100.00%        | 99.53%         | 100.00%       | 99.62%        | 99.51%        | 99.01%        |
| 2.0                | 100.00%        | 99.53%         | 100.00%       | 99.13%        | 99.51%        | 99.01%        |
| 2.5                | 99.71%         | 98.59%         | 100.00%       | 98.64%        | 99.51%        | 99.01%        |
| 3.0                | 99.71%         | 98.59%         | 100.00%       | 99.62%        | 99.51%        | 99.01%        |
| 3.5                | 99.71%         | 98.59%         | 100.00%       | 99.62%        | 99.51%        | 99.01%        |
| 4.0                | 99.71%         | 98.59%         | 100.00%       | 99.13%        | 99.51%        | 98.90%        |
| 4.5                | 99.71%         | 98.59%         | 100.00%       | 99.13%        | 99.02%        | 98.52%        |
| 5.0                | 99.71%         | 98.59%         | 100.00%       | 98.64%        | 98.04%        | 98.03%        |
| 5.5                | 99.71%         | 98.59%         | 100.00%       | 97.15%        | 97.04%        | 97.52%        |
| 6.0                | 99.71%         | 98.59%         | 100.00%       | 95.68%        | 95.11%        | 97.08%        |
| 6.5                | 99.71%         | 98.59%         | 99.90%        | 93.73%        | 92.73%        | 96.06%        |
| 7.0                | 99.71%         | 98.59%         | 99.90%        | 90.29%        | 89.21%        | 94.08%        |
| 7.5                | 99.52%         | 98.58%         | 99.90%        | 85.39%        | 84.31%        | 90.14%        |
| 8.0                | 99.52%         | 98.44%         | 99.89%        | 79.01%        | 78.02%        | 84.74%        |
| 8.5                | 99.52%         | 98.10%         | 99.89%        | 72.62%        | 71.08%        | 78.93%        |
| 9.0                | 99.52%         | 97.62%         | 98.91%        | 65.27%        | 64.21%        | 71.57%        |
| 9.5                | 99.04%         | 97.62%         | 98.40%        | 57.40%        | 56.84%        | 66.08%        |
| 10.0               | 98.56%         | 97.14%         | 97.91%        | 52.01%        | 49.75%        | 59.59%        |
| 10.5               | 98.08%         | 96.27%         | 97.91%        | 45.14%        | 43.62%        | 54.68%        |
| 11.0               | 97.59%         | 95.87%         | 97.91%        | 39.99%        | 38.73%        | 50.25%        |
| 11.5               | 97.44%         | 95.36%         | 96.42%        | 35.86%        | 33.81%        | 47.28%        |
| 12.0               | 97.11%         | 95.20%         | 96.42%        | 32.87%        | 30.39%        | 44.82%        |
| 12.5               | 96.63%         | 94.72%         | 95.94%        | 30.41%        | 26.94%        | 43.34%        |
| 13.0               | 95.97%         | 94.25%         | 95.43%        | 28.95%        | 24.98%        | 42.35%        |
| 13.5               | 95.27%         | 93.77%         | 93.96%        | 27.46%        | 23.04%        | 41.19%        |
| 14.0               | 94.57%         | 93.60%         | 93.45%        | 26.97%        | 22.05%        | 40.87%        |
| 14.5               | 94.68%         | 93.29%         | 92.48%        | 26.97%        | 21.56%        | 40.87%        |
| 15.0               | 94.21%         | 92.80%         | 92.48%        | 26.48%        | 21.08%        | 40.87%        |
| 15.5               | 94.21%         | 92.79%         | 92.48%        | 26.48%        | 21.08%        | 40.87%        |
| 16.0               | 94.21%         | 92.32%         | 92.03%        | 26.48%        | 21.08%        | 40.87%        |
| 16.5               | 93.27%         | 92.32%         | 91.80%        | 26.48%        | 21.08%        | 40.87%        |
| 17.0               | 93.24%         | 92.32%         | 90.57%        | 26.48%        | 21.08%        | 40.87%        |
| 17.5               | 92.76%         | 91.84%         | 90.00%        | 26.48%        | 21.08%        | 40.87%        |
| 18.0               | 92.76%         | 91.84%         | 89.50%        | 26.48%        | 21.08%        | 40.87%        |
| 18.5               | 92.76%         | 90.88%         | 89.50%        | 26.48%        | 21.08%        | 40.87%        |
| 19.0               | 92.35%         | 90.88%         | 88.52%        | 26.48%        | 21.08%        | 40.87%        |
| 19.5               | 92.27%         | 90.88%         | 88.01%        | 26.48%        | 21.08%        | 40.87%        |
| 20.0               | 92.27%         | 90.88%         | 88.01%        | 26.48%        | 21.08%        | 40.87%        |

**DATE:** 4/2/2015  
**PROJECT #:** 100-4890-4  
**SUPPLIER:** TEMP-Coat Brand Products L.L.C.  
**CONDITIONING:** 140°F for 24 hours.  
**TEST ROOM TEMP:** 73 ± 5°F  
**RELATIVE HUMIDITY:** 50 ± 10 %  
**CHAMBER WALL TEMP:** 95 ± 4°F  
**SPECIMEN MOUNTING:** Standard  
**SPECIAL PREPARATION:** None  
**SPECIMEN COMPOSITION:** Homogenous  
**SPECIMEN COLOR:** white  
**SPECIMEN DESCRIPTION:** TEMP-COAT 101

| <b>SAMPLE #:</b> | <b>NON-FLAMING</b> |          |          | <b>FLAMING</b> |          |          |
|------------------|--------------------|----------|----------|----------------|----------|----------|
|                  | <u>1</u>           | <u>2</u> | <u>3</u> | <u>4</u>       | <u>5</u> | <u>6</u> |
| Thickness (in):  | 0.26               | 0.26     | 0.26     | 0.26           | 0.26     | 0.26     |
| Weight (g):      | 285.6              | 282.2    | 280.9    | 281.5          | 288.2    | 286.3    |
| Tmin (%):        | 92.27%             | 90.88%   | 88.01%   | 26.48%         | 21.08%   | 40.87%   |
| Dm (20.0 min.):  | 4.61               | 5.48     | 7.32     | 76.17          | 89.24    | 51.30    |
| T (clear):       | 99.04%             | 97.14%   | 100.38%  | 92.74%         | 95.09%   | 95.56%   |
| Dc (clear):      | 0.55               | 1.67     | -0.22    | 4.32           | 2.88     | 2.60     |
| Dm (corr):       | 4.06               | 3.82     | 7.54     | 71.85          | 86.36    | 48.70    |
| Ds (1.5 min.):   | 0.00               | 0.27     | 0.00     | 0.22           | 0.28     | 0.57     |
| Ds (4.0 min.):   | 0.17               | 0.81     | 0.00     | 0.50           | 0.28     | 0.63     |
| Color of smoke:  | Gray               | Gray     | Gray     | Gray           | Gray     | Gray     |

**OBSERVATIONS:** no unusual observations

**OPTICAL DENSITY TEST RESULT SUMMARY**

|                          | <b><u>NON-FLAMING</u></b> | <b><u>FLAMING</u></b> |
|--------------------------|---------------------------|-----------------------|
| Ds @ 1.5 min. (average): | 0.1                       | 0.4                   |
| Ds @ 4.0 min. (average): | 0.3                       | 0.5                   |
| Dm (average):            | 5.8                       | 72.2                  |
| Dm(corr) (average):      | 5.1                       | 69.0                  |

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