

# Certificate of Flame Resistance



REGISTERED APPLICATION CONCERN No.

F-12241

ISSUED BY

Herculite Products, Inc.  
P.O Box 435  
Emigsville, PA 17318

Date Work Performed

02/12/14

Customer Number: 1952

This is to certify that the materials described on the bottom hereof have been flame-retardant treated (or are inherently nonflammable).

FOR Pacific Yurts AT 77456 Highway 99 S  
CITY Cottage Grove STATE OR 97424

Certification is hereby made that: (Check "a" or "b")

(a) The articles described on the bottom of this Certificate have been treated with a flame-retardant chemical approved and registered by the State Fire Marshal and that the application of said chemical was done in conformance with the laws of the State of California and the Rules and Regulations of the State Fire Marshal

Name of chemical used \_\_\_\_\_ Chem. Reg. No \_\_\_\_\_

Method of application \_\_\_\_\_

(b) The articles described on the bottom hereof are made from a flame-resistant fabric or material registered and approved by the State Fire Marshal for such use.

Trade name of flame-resistant fabric or material used Structural 18-X-Life Reg. No F-12241

The Flame Retardant Process Used WILL NOT Be Removed By Washing

(will or will not)

*David S. Kellum*

By *Stephanie Humant*

Name of Production Superintendent

QC Manager

CONTROL NUMBER 11397-0  
CUSTOMER ORDER NUMBER 5810  
CUSTOMER INVOICE NUMBER 198046  
YARDS OR QUANTITY 1,425 YD  
COLOR Putty  
STYLE Structural 18-X-Life  
DATE PROCESSED 11/19/2014



Received: 01/13/2006 Completed: 01/24/2006 Letter: K1 rb P.O.#: P209290 Test Report #: 2-60878-1-

Client's Identification Resource No. 101634 Structural-18 X-Life Putty ML# 34238.

Tested For: **Valerie Wagman** Key Test: NFPA 701-2004 TM#2 Flat WL 210  
 Herculite Products  
 PO Box 435 Tel: 1-(800)-772-0036 Ext: 2273  
 Emigsville, PA 17318 Fax: 1-(717)-718-8734

PC:1H

TEST PERFORMED: NFPA 701 - Standard Methods of Fire Tests for Flame Propagation of Textiles and Films - 2004 Edition - Test Method #2 - Flat Sheet Specimens

SPECIMEN CONFIGURATION:  Single Layer;  Multi Layer

RESULTS REPORTED:  Initially  After 72 hours water leaching  
 After 3 dry cleanings  After 100 hours accelerated weathering  
 After 5 launderings @ 160°F

RESULTS:

| Length Specimen # | Afterflame (seconds) | Drip Burn (seconds) | Char Length (mm) |
|-------------------|----------------------|---------------------|------------------|
| 1                 | 0                    | 0                   | 190              |
| 2                 | 0                    | 0                   | 190              |
| 3                 | 0                    | 0                   | 250              |
| 4                 | 0                    | 0                   | 210              |
| 5                 | 0                    | 0                   | 220              |
| 6                 | 0                    | 0                   | 220              |
| 7                 | 0                    | 0                   | 250              |
| 8                 | 0                    | 0                   | 210              |
| 9                 | 0                    | 0                   | 210              |
| 10                | 0                    | 0                   | 210              |

APPROXIMATE WEIGHT OF MATERIAL (as measured by Govmark): 662 g/m<sup>2</sup>

FAILURE CRITERIA: For each individual specimen --

| Afterflame          | Drip Burn           | Char Length            |
|---------------------|---------------------|------------------------|
| Exceeds 2.0 seconds | Exceeds 2.0 seconds | Exceeds 435 mm (17.1") |

RETEST PROVISION: Test 5 additional specimens if only 1 specimen fails.

CONCLUSION: Based on the above Results and Failure Criteria, the item tested:

Passes;  Fails;  Requires testing of 5 additional specimens

CERTIFICATION: I certify that the above results were obtained after testing specimens in accordance with the procedures and equipment specified by NFPA 701 - 2004 Edition Test Method #2 Flat Sheet Specimens.

*[Handwritten Signature]*

AUTHORIZED SIGNATURE  
 THE GOVMARK ORGANIZATION, INC. /jd AH

(Page 1 of 2)



|                      |                       |           |    |                |                |            |
|----------------------|-----------------------|-----------|----|----------------|----------------|------------|
| Received: 01/13/2006 | Completed: 01/24/2006 | Letter: K | rb | P.O.#: P209290 | Test Report #: | 2-60878-0- |
|----------------------|-----------------------|-----------|----|----------------|----------------|------------|

|                         |   |
|-------------------------|---|
| Client's Identification | Resource No. 101634 Structural-18 X-Life Putty ML# 34238. |
|-------------------------|---|

|   |   |
|---|---|
| <b>Tested For: Valerie Wagman</b><br>Herculite Products<br>PO Box 435<br>Emigsville, PA 17318 | <b>Key Test: NFPA 701-2004 TM#2 Flat</b> 210<br><br><b>Tel: 1-(800)-772-0036</b> <b>Ext: 2273</b><br><b>Fax: 1-(717)-718-8734</b> |
|---|---|

PRECONDITIONING:     1 hr @ 220°F (Standard)  
                                24 hrs @ 68±9°F (Alternate: Material shrinks/distorts @ 220°F)

REMARKS:  
None.

CONVERSION FACTORS:  
mm + 25.4 = inches  
g/m<sup>2</sup> + 28.35 x .835 = oz/yd<sup>2</sup>

(Page 2 of 2)



**CALIFORNIA DEPARTMENT OF FORESTRY and FIRE PROTECTION  
OFFICE OF THE STATE FIRE MARSHAL**

**REGISTERED FLAME RESISTANT PRODUCT**

**Product:**

**DURO-LAST MEMBRANE**

**Registration No.**

**F-66801**

**Product Marketed By:**

**DURO-LAST ROOFING INC.  
525 MORLEY DRIVE  
SAGINAW, MI 48601**

This product meets the minimum requirements of flame resistance established by the California State Fire Marshal for products identified in Section 13115, California Health and Safety Code.

The scope of the approved use of this product is provided in the current edition of the **CALIFORNIA APPROVED LIST OF FLAME RETARDANT CHEMICALS AND FABRICS, GENERAL AND LIMITED APPLICATIONS CONCERNS** published by the California State Fire Marshal.

A handwritten signature in black ink, appearing to be "D. D.", written over a horizontal line.

Deputy State Fire Marshal

**Expire: 6/30/2015**



Architectural Testing

Test Report No.: B6587.01-121-24  
Report Date: 01/27/12  
Test Record Retention End Date: 01/25/16  
Page 1 of 4

**1.0 Report Issued To:** DURA-LAST, INC.  
525 Morley Drive  
Saginaw, Michigan 48601

**2.0 Test laboratory:** Architectural Testing, Inc.  
130 Derry Court  
York, Pennsylvania 17406-8405  
717-764-7700

**3.0 Project Summary:**

**3.1 Product Type:** PVC Roofing Membrane

**3.2 Series/Model:** Duro-Last® Specially Formulated Roofing Membrane

**3.3 Compliance Statement:** Results obtained are tested values and were secured by using the designated test method(s). A summary of the results is listed in the Test Results section of this report.

**3.4 Test Date:** 01/25/12

**3.5 Test Location:** Architectural Testing, Inc., test facility in York, Pennsylvania.

**3.6 Test Sample Source:** The test specimen was provided by the client. Representative samples of the test specimen(s) will be retained by Architectural Testing for a minimum of four years from the test completion date.

**3.7 List of Official Observers:**

| <u>Name</u>   | <u>Company</u>              |
|---------------|-----------------------------|
| Ethan Grove   | Architectural Testing, Inc. |
| Russell Clark | Architectural Testing, Inc. |

**4.0 Test Method(s), Practices and/or Classifications:**

NFPA 701 (2010), *Standard Methods of Fire Tests for Flame Propagation of Textiles and Films (Method 2)*

**5.0 Test Specimen Description:**

|                |  |
|----------------|--|
| Date Tested:   | 01/25/12   |
| Manufacturer*: | Dura-Last, Inc.  |
| Product Type:  | PVC Roofing Membrane   |
| Series/Model:  | Duro-Last® Specially Formulated Roofing Membrane               |
| Composition*:  | PVC  |
| Conditioning:  | 1-3 Hours at 220°F   |
| Size:          | 5-1/16 in wide by 46-3/4 in long (128 mm wide by 1187 mm long) |
| Thickness*:    | 40 mil   |
| Color*:        | Tan  |

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

Note: Specimens were conditioned as per the requirements of NFPA 701 (2010) for Test Method utilized.

**6.0 Test Results:** The test results are tabulated as follows:

| Test Results (Test Method 2) |                  |                            |                            |           |
|------------------------------|------------------|----------------------------|----------------------------|-----------|
| Specimen                     | Char Length (in) | After Flame Time (min:sec) | Burning on Floor (min:sec) | Pass/Fail |
| 1                            | 2-1/4            | 00:00                      | 00:00                      | Pass      |
| 2                            | 2-1/8            | 00:00                      | 00:00                      | Pass      |
| 3                            | 2-3/16           | 00:00                      | 00:00                      | Pass      |
| 4                            | 2-3/8            | 00:00                      | 00:00                      | Pass      |
| 5                            | 2-13/16          | 00:00                      | 00:00                      | Pass      |
| 6                            | 1-7/8            | 00:00                      | 00:00                      | Pass      |
| 7                            | 15/16            | 00:00                      | 00:00                      | Pass      |
| 8                            | 1-1/16           | 00:00                      | 00:00                      | Pass      |
| 9                            | 2-1/4            | 00:00                      | 00:00                      | Pass      |
| 10                           | 1-1/2            | 00:00                      | 00:00                      | Pass      |

Note: The test specimen was tested as a flat sheet. Pass/Fail Criteria is as per NFPA 701 (2010) Section 15.1.1 through 15.1.4.

**Observations:** Minor shrinkage inward from the sides and at the center. No dripping or after flame observed. Little to no odor or smoke was observed.

*The purpose of Test Methods 1 and 2 shall be to assess the propagation of flame beyond the area exposed to the ignition source. Test Methods 1 and 2 shall not be deemed to indicate whether the material tested resists the propagation of flame under more severe fire exposure conditions or when the material is used in a manner that differs from the test conditions. (NFPA 701 (2010), section 1.2.1 and 1.2.2)*

**7.0 Test Equipment Used:**

| Device                       | Asset No. |
|------------------------------|-----------|
| Dwyer Pressure Gauge         | 63478     |
| Sierra Flow Meter            | 63521     |
| Traceable Stopwatch          | 63215     |
| Traceable Stopwatch          | 63216     |
| Thermometer (Used with oven) | 63522     |
| SPI Ruler                    | 62733     |

The service life of this report will expire on the stated Test Record Retention End Date, at which time such materials as drawings, data sheets, samples of test specimens, copies of this report, and any other pertinent project documentation, shall be discarded without notice.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen(s) tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

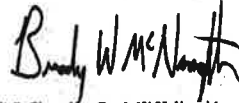
For ARCHITECTURAL TESTING, INC.



Digitally Signed by: Russell Clark

Russell W. Clark  
Technician

RWC:ddr



Digitally Signed by: Brady W. McNaughton

Brady W. McNaughton, P.E.  
Program Manager – Fire Testing

Attachments (pages): This report is complete only when all attachments listed are included.  
Appendix-A: Photographs (1)

## DURO-LAST PHYSICAL PROPERTIES AS OUTLINED BY ASTM D-4434

| TEST DESCRIPTION                | TEST METHOD                   | METRIC RESULTS                                       | ENGLISH RESULTS        |
|---------------------------------|-------------------------------|--|------------------------|
| Thickness, Nominal              | ASTM D-751                    | 1 mm   | 40 mils – Type IV      |
| Weight                          | ASTM D-751                    | 1.1 kg per m <sup>2</sup>                            | 0.25 lbs. per sq. ft.  |
| Trapezoidal Tear Strength, Min. | ASTM D-5587                   | 578 x 498 N  | 130 x 172 lbf.         |
| Breaking Strength, Min.         | ASTM D-751                    | 1935 x 1557 N  | 435 x 350 lbf.         |
| Tensile Strength                | ASTM D-751, ASTM-D882         | 506 K/cm <sup>2</sup>                                | 7200 PSI               |
| EMMAQUA Exposure                | ASTM G90, Desert Sun          | 339,790 MJ/m <sup>2</sup>                            | >8.1 million langley's |
| Heat Aging                      | ASTM D-3045 (7 days @ 194°F)  | Retains 90% of Breaking Strength, >95% of elongation |                        |
| Elongation                      | ASTM D-751                    | 25%  |                        |
| Dimensional Stability           | ASTM D-1204, 80° C, 6 hrs.    | < 0.05%  |                        |
| Low Temperature Flexibility     | ASTM D-2136, 3 mm Mandrel     | No Cracks -40° C                                     | No Cracks -40° F       |
| Dynamic Puncture Resistance     | ASTM D-5635                   | 20 J   | 474 PDL-FT             |
| Static Puncture Resistance      | ASTM D-5602                   | >533 N   | >120 PSF               |
| Moisture Vapor Transmission     | ASTM E-96, Proc. B, Method A  | < 0.086 g/hr/m <sup>2</sup>                          | < 0.25 U.S. Perms      |
| Fungi Resistance                | ASTM G-21                     | No sustained growth or discoloration                 |                        |
| Factory Mutual Research         | ASTM E-108; FM 4450 & FM 4470 | Class 1-60, 1-90, 1-105, 1-150 & 1-210               |                        |
| Underwriters Laboratories       | UL-790                        | Class A, B & C                                       |                        |
| Solar Reflectance               | ASTM C1549                    | 88%  |                        |
| Thermal Emittance               | ASTM C1371-98                 | 87%  |                        |



100% Polyester Side Cover



**CALIFORNIA DEPARTMENT OF FORESTRY and FIRE PROTECTION  
OFFICE OF THE STATE FIRE MARSHAL**

## **REGISTERED FLAME RESISTANT PRODUCT**

**Product:**  
AVENUE

**Registration No.**  
F-07607

**Product Marketed By:**  
GRANITEVILLE SPECIALTY FABRICS  
511 LEITNER STREET  
GRANITEVILLE, SC 29829

This product meets the minimum requirements of flame resistance established by the California State Fire Marshal for products identified in Section 13115, California Health and Safety Code.

The scope of the approved use of this product is provided in the current edition of the **CALIFORNIA APPROVED LIST OF FLAME RETARDANT CHEMICALS AND FABRICS, GENERAL AND LIMITED APPLICATIONS CONCERNS** published by the California State Fire Marshal.

A handwritten signature in blue ink, consisting of a large, stylized initial 'D' followed by several loops and a long horizontal line extending to the right.

Deputy State Fire Marshal

**Expire: 6/30/2015**

**CERTIFICATE OF FLAME RESISTANCE  
ISSUED BY**



DATE: 08/02/11

**511 Leitner Street  
PO BOX 520  
Graniteville, South Carolina 29829**

This certificate is to certify that the fabric described below and in the corresponding Customer Invoice, issued by GSF, with Number Pacific Yurts, Applicable Customer Ref./ID Number 6250 and customer to GSF PO# 200624 has been tested, quality checked and approved in accordance with the standards associated with **CPAI-84, CSFM,CA19,NFPA 701-2010**

Product AVENUE

Lot No. 3004897

Pattern 05252

Color DARK LINEN

08/02/11

Quality Control Laboratory Report Number \_\_\_\_\_

Date \_\_\_\_\_

A handwritten signature in black ink that reads "Doug Johnson".

Certified By: Doug Johnson Plant Manager

Polyester Side Cover



66-D Allen Boulevard  
 Farmingdale, New York 11735-5828 USA  
 Tel +1 (631) 293-8944 Fax +1 (631) 293-8968  
 e-mail: info@govmark.com

Received: 05/09/2011 | Completed: 05/11/2011 | Letter: K | rb | P.O.#: | Test Report #: 2-87561-0-

Client's Identification: Main Street Black Lot 3004625. [Specimens cut and marked by client]

Tested For: Doug Johnson  
 Graniteville Specialty Fabrics  
 511 Laitner Street  
 Graniteville, SC 29829

Key Test: CA 1237 Sm 135  
 Tel: 1-(803)-633-2350  
 Fax: 1-(803)-663-2908

PC: 1H /jd

TEST PERFORMED: California Fire Marshal Title 19: Section 1237 (Proposed Revision 8/9/93) Fire Resistance; Small Scale Test - EXTERIOR MATERIALS QUALIFICATION

RESULTS REPORTED:  Initially  
 After 72 hours water leaching  
 After 100 hours weathering

| RESULTS: | Specimen # | Afterflame (seconds) | Afterglow (seconds) | Char Length (inches) |
|----------|------------|----------------------|---------------------|----------------------|
| Warp:    | 1          | 0.0                  | 18.5                | 4.5                  |
|          | 2          | 0.0                  | 12.6                | 4.4                  |
|          | 3          | 1.2                  | 13.2                | 4.7                  |
|          | 4          | 0.0                  | 10.7                | 4.6                  |
|          | 5          | 0.0                  | 17.5                | 4.8                  |
|          | Avg:       | 0.2                  |                     |                      |
| Fill:    | 6          | 4.1                  | 17.4                | 4.6                  |
|          | 7          | 0.0                  | 29.8                | 4.3                  |
|          | 8          | 0.0                  | 20.2                | 5.1                  |
|          | 9          | 2.7                  | 21.9                | 3.9                  |
|          | 10         | 0.0                  | 18.7                | 4.3                  |
|          | Avg:       | 1.4                  |                     |                      |

APPROXIMATE WEIGHT OF MATERIAL (as measured by Govmark): 11.4 oz/yd<sup>2</sup>

ACCEPTANCE CRITERIA:

Afterflame: 4.0 seconds maximum avg for length or width  
 Afterglow: (see Note #2 below)  
 Char Length: 6.0" maximum for any individual specimen

Notes:

1. An asterisk (\*) next to any char length measurements indicates that a part of the char length is melt away due to heat from the flame source and not from propagating flame. Therefore, the sample submitted meets the requirements of Title 19 - California Code of Regulations, Section 1237 and 1237.1 for materials weighing less than 4 oz/yd<sup>2</sup>.
2. Afterglow is required to be reported; however, it is not factored into the Acceptance Criteria.



86-D Allen Boulevard  
Farmingdale, New York 11735-6626 USA  
Tel +1 (631) 293-8844 Fax +1 (631) 293-8868  
e-mail: info@govmark.com

Page 2

|                                |   |           |    |        |                |            |
|--------------------------------|---|-----------|----|--------|----------------|------------|
| Received: 05/09/2011           | Completed: 05/11/2011   | Letter: K | rb | P.O.#: | Test Report #: | 2-87561-0- |
| Client's Identification        | Main Street Black Lot 3004625. [Specimens cut and marked by client] |           |    |        |                |            |
| Tested For: Doug Johnson       | Key Test: CA 1237 Sm  |           |    |        | 135            |            |
| Graniteville Specialty Fabrics | Tel: 1-(803)-633-2350   |           |    |        | Ext:           |            |
| 511 Latham Street              | Fax: 1-(803)-663-2908   |           |    |        |                |            |
| Graniteville, SC 29829         |   |           |    |        |                |            |

CONCLUSION: Based on the above Results and Acceptance Criteria, the item tested:

Complies;  Does not comply

REMARKS: None.

NOTE: In August 1993 the State Fire Marshal issued a proposed revision, which permitted a maximum average afterflame of 4.0 seconds. This proposed revision was honored by the subsequent State Fire Marshal until approximately February 2004, at which time the State Fire Marshal's office reverted to the unrevised rule of 2.0 seconds maximum average for exterior fabric.

In a conversation with the latest California State Fire Marshal on August 9, 2007, it was learned that the proposed 1993 revision is now back in effect. In addition to allowing 4 seconds Afterflame rather than 2 seconds, the proposed revision provides for testing of 10 specimens, rather than 6 specimens. This information has been verified current per an April 28, 2010 conversation with the California State Fire Marshall.

CERTIFICATION: I certify that the above results were obtained after testing specimens in accordance with the procedures and equipment specified by California Fire Marshal Title 19: Section 1237 (Proposed Revision 8/9/93).



MAY 12 2011

AUTHORIZED SIGNATURE  
THE GOVMARK ORGANIZATION, INC. /rb /mg

MS. PHYLLIS PETTIT

(Page 2 of 2)



# COMMERCIAL TESTING COMPANY

1215 South Hamilton Street • Post Office Box 985 • Dalton, GA 30722  
Telephone (706) 278-3935 • Facsimile (706) 278-3936

Standard Method of Test for  
Surface Burning Characteristics of Building Materials

ASTM E 84-09

Main Street, Pattern: 301 MST

Report Number 09-06139

Test Number 4082-6957  
June 12, 2009

Glen Raven Technical Fabrics, LLC  
Statesville, North Carolina

Commercial Testing Company

(Authorized Signature)

*This report is provided for the exclusive use of the client to whom it is addressed. It may be used in its entirety to gain product acceptance from duly constituted authorities. The test results presented in this report apply only to the samples tested and are not necessarily indicative of apparent identical or similar materials. Sample selection and identification were provided by the client. A sampling plan, if described in the referenced test procedure, was not necessarily followed. This report, or the name of Commercial Testing Company, shall not be used under any circumstance in advertising to the general public.*

**TESTED TO BE SURE®**  
Since 1974

## INTRODUCTION

This report is a presentation of results of a surface flammability test on a material submitted by Glen Raven Technical Fabrics, LLC, Statesville, North Carolina.

The test was conducted in accordance with the ASTM International fire test response standard E 84-09, *Surface Burning Characteristics of Building Materials*, sometimes referred to as the Steiner tunnel test. This test is applicable to exposed surfaces such as walls and ceilings. The test is conducted with the specimen in the ceiling position with the surface to be evaluated exposed face down to the ignition source. The ASTM E 84 test method is the technical equivalent of NFPA No. 255 and UL No. 723.

This standard is used to measure and describe the response of materials, products, or assemblies to heat and flame under controlled conditions, but does not by itself incorporate all factors required for fire-hazard or fire-risk assessment of materials, products, or assemblies under actual fire conditions.

## PURPOSE

The purpose of the test is to provide only the comparative measurements of surface flame spread and smoke development of materials with that of select grade red oak and fiber-reinforced cement board, Grade II, under specific fire exposure conditions. The test exposes a nominal 24-foot long by 20-inch wide test specimen to a controlled air flow and flaming fire adjusted to spread the flame along the entire length of a red oak specimen in 5.50 minutes. During the 10-minute test duration, flamespread over the specimen surface and density of the resulting smoke are measured and recorded. Test results are calculated relative to red oak, which has an arbitrary rating of 100, and fiber-reinforced cement board, Grade II, which has a rating of 0.

The test results are expressed as Flame Spread Index and Smoke Developed Index. The Flame Spread Index is defined in ASTM E 176 as "a number or classification indicating a comparative measure derived from observations made during the progress of the boundary of a zone of flame under defined test conditions." The Smoke Developed Index, a term specific to ASTM E 84, is defined as "a number or classification indicating a comparative measure derived from smoke obscuration data collected during the test for surface burning characteristics." There is not necessarily a relationship between the two measurements.

The method does not provide for measurement of heat transmission through the surface tested, the effect of aggravated flame spread behavior of an assembly resulting from the proximity of combustible walls and ceilings, or classifying a material as noncombustible solely by means of a Flame Spread Index.

The zero reference and other parameters critical to furnace operation are verified on the day of the test by conducting a 10-minute test using 1/4-inch fiber-reinforced cement board, Grade II. Periodic tests using NOFMA certified 23/32-inch select grade red oak flooring provide data for the 100 reference.

## TEST SAMPLE

The test sample, selected by the client, was identified as **Main Street, Pattern: 301 MST**, a coated fabric more fully described below. The material was conditioned to equilibrium in an atmosphere with the temperature maintained at  $71 \pm 2^\circ\text{F}$  and the relative humidity at  $50 \pm 5$  percent. For testing, one length of the material, measuring 2 feet wide by 24 feet in length, was free laid over a 2-inch hexagonal wire mesh supported by 1/4-inch diameter steel rods spanning the ledges of the tunnel furnace at 24-inch intervals. This method of auxiliary sample support is described in Appendix X1 of the E 84 standard, Guide to Mounting Methods, Sections X1.1.2.2(a) and X1.1.2.3.

## SAMPLE DESCRIPTION

Identification: Main Street, Pattern: 301 MST  
Type Material: Coated Fabric  
Lot Number: 04372  
Total Weight: 11.2 ounces per square yard  
Thickness: 0.021 inch

### TEST RESULTS

The test results, calculated on the basis of observed flame propagation and the integrated area under the recorded smoke density curve, are presented below. The Flame Spread Index obtained in E 84 is rounded to the nearest number divisible by five. Smoke Developed Indices are rounded to the nearest number divisible by five unless the Index is greater than 200. In that case, the Smoke Developed Index is rounded to the nearest 50 points. The flame spread and smoke development data are presented graphically at the end of this report.

| Test Specimen                           | Flame Spread Index | Smoke Developed Index |
|---|--------------------|-----------------------|
| Fiber-Reinforced Cement Board, Grade II | 0                  | 0                     |
| Red Oak Flooring                        | 100                | 100                   |
| Main Street, Pattern: 301 MST           | 10                 | 250                   |

### OBSERVATIONS

Specimen ignition over the burners occurred at 0.12 minute. Surface flame spread was observed to a maximum distance of 1.56 feet beyond the zero point at 0.63 minute. The maximum temperature recorded during the test was 489°F.

### CLASSIFICATION

The Flame Spread Index and Smoke Developed Index values obtained by ASTM E 84 tests are frequently used by code officials and regulatory agencies in the acceptance of interior finish materials for various applications. The most widely accepted classification system is described in the National Fire Protection Association publication NFPA 101 *Life Safety Code*, where:

|         |                             |                               |
|---------|-----------------------------|-------------------------------|
| Class A | 0 - 25 Flame Spread Index   | 0 - 450 Smoke Developed Index |
| Class B | 26 - 75 Flame Spread Index  | 0 - 450 Smoke Developed Index |
| Class C | 76 - 200 Flame Spread Index | 0 - 450 Smoke Developed Index |

Class A, B, and C correspond to Type I, II, and III respectively in other codes. They do not preclude a material being otherwise classified by the authority of jurisdiction.

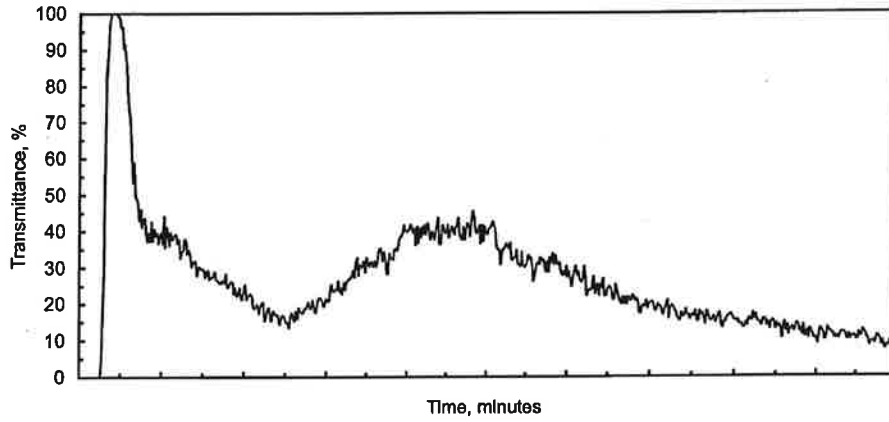
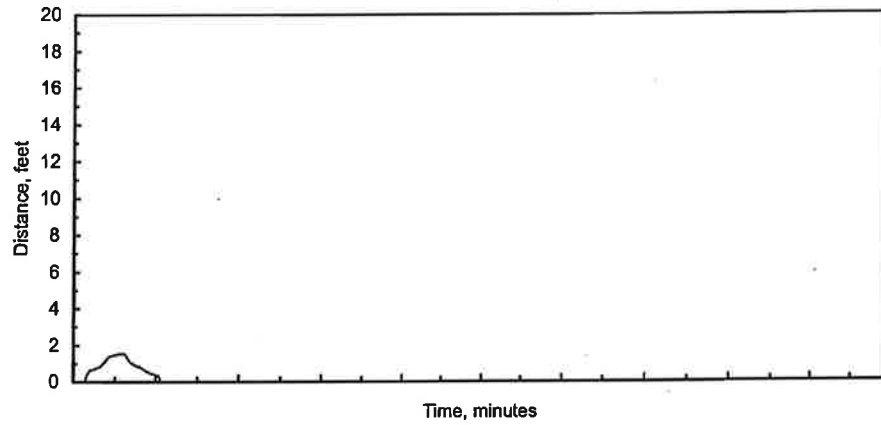
### ASTM E 84 TEST DATA

Client: Glen Raven Technical Fabrics LLC  
Test Number: 4082-6957  
Material Tested: Main Street, Pattern: 301 MST  
Date: June 12, 2009

#### Test Results:

Time to Ignition = 00.12 minutes  
Maximum Flamespread Distance = 01.56 feet  
Time to Maximum Spread = 00.63 minutes

Flame Spread Index = 10  
Smoke Developed Index = 250





# Certificate of Flame Resistance



ISSUED BY  
**JOHN BOYLE & COMPANY, INC.**  
1803 Salisbury Hwy  
Statesville, NC 28677  
704-878-6175

Date treated or  
manufactured  
**6-16-2007**

*This is to certify that the materials described below have been flame-retardant treated (or are inherently nonflammable).*

FOR **PACIFIC YURTS INC  
77456 HWY 99 SOUTH  
COTTAGE GROVE  
OR 974240000**

Certification is hereby made that: (Check "a" or "b")

(a) The articles described below this Certificate have been treated with a flame-retardant chemical approved and registered by the State Fire Marshal and that the application of said chemical was done in conformance with the laws of the State of California and the Rules and Regulations of the State Fire Marshal.

Name of chemical used \_\_\_\_\_ Chem. Reg. No. \_\_\_\_\_

Method of application \_\_\_\_\_

(b) The articles described below are made from a flame-resistant fabric or material registered and approved by the State Fire Marshal for such use.

Trade name of flame-resistant fabric or material used  
**522**

**PATIO 61" 522 BEIGE** Reg. No. **F-12102**

**The Flame-Retardant Process Used WILL NOT Be Removed By Washing**

**JOHN BOYLE & COMPANY, INC.**  
Name of Applicator or Production Superintendent

**JOHN BOYLE & COMPANY, INC.**  
By *Michael Dorfman*  
President/Michael B. Dorfman

Control Number 00126  
Order Number 88677  
Customer Number 1078212  
PO Number \_\_\_\_\_  
Invoice Number 1426019  
Quantity 300.00

**Sell Certified Flame-Retardant Fabrics By BOYLE**  
Your product will meet the rigid specifications of the California Fire Marshal.

**JOHN BOYLE & COMPANY AND DISTRIBUTORS**

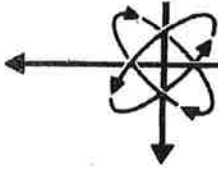
January 13, 2012

A representative lot of Patio 500 was sent to an outside laboratory and was tested in accordance with the National Fire Prevention Association No. 701, "Flame Propagation of Textiles and Films, 2010 Edition (Test 2, Large Scale)". The sample submitted meets the minimum requirement of the above noted standard.



S. Mummert

Quality Analyst



TESTING LABORATORIES, INC.

"We Test Per Your Request"

336 WEST FRONT STREET  
P.O. BOX 4004  
BURLINGTON, NORTH CAROLINA 27215  
PHONE (336) 227-7710 • FAX (336) 227-1175  
www.diversifiedtestinglabs.com

April 7, 2011

Ms: Stephanie Mummert  
HERCULITE PRODUCTS, INC.  
P.O. Box 435  
Emigsville, PA 17318

Reference: Flammability Test Report  
Lab Identification No. 7412  
Invoice No. 28915 (Attached)

Dear Ms. Mummert:

One (1) sample, identified as PATIO 500 536 COBALT 111026, LOT# 46699, was received and tested in accordance with the California Administrative Code Title 19--Public Safety, Section 1237. Flame Resistance, Small Scale Test. The sample was tested after 100 hours of accelerated weathering. The results are as follows:

| <u>Specimen Number</u> | <u>After Flame Time (sec)</u> |              | <u>Char Length (in)</u> |              |
|------------------------|-------------------------------|--------------|-------------------------|--------------|
|                        | <u>Length</u>                 | <u>Width</u> | <u>Length</u>           | <u>Width</u> |
| 1                      | 0.0                           | 0.0          | 3.9                     | 3.9          |
| 2                      | 0.0                           | 0.0          | 3.5                     | 4.3          |
| 3                      | 0.0                           | 0.0          | 3.8                     | 4.1          |
| 4                      | 0.0                           | 0.0          | 4.3                     | 3.7          |
| 5                      | 0.0                           | 0.0          | 4.2                     | 3.7          |
| Avg.                   | 0.0                           | 0.0          |                         |              |

The sample submitted, when tested after 100 hours accelerated weathering, meets the minimum requirements of the above standard. The char length may not exceed 6.0 inches for any individual specimen and the average afterflame time may not exceed 4.0 seconds in the length or width directions.

If there are any questions or when we can be of further assistance, please let us know.

Sincerely,

Bobby E. Puett

BEP/mr

Attachment

OUR LETTERS AND REPORTS ARE FOR THE EXCLUSIVE USE OF THE CLIENT TO WHOM THEY ARE ADDRESSED. ANY COMMUNICATION TO OTHERS OR THE USE OF OUR COMPANY NAME MAY RECEIVE PRIOR APPROVAL. OUR TEST RESULTS APPLY ONLY TO THE SAMPLE TESTED AND ARE NOT NECESSARILY INDICATIVE OF THE QUALITIES OF APPARENTLY IDENTICAL OR SIMILAR PRODUCTS. SAMPLES NOT DESTROYED IN TESTING ARE RETAINED A MAXIMUM OF THIRTY DAYS. THE LETTERS, REPORTS OR NAME OF DIVERSIFIED TESTING LABORATORIES, INC. MAY NOT BE USED IN ADVERTISING TO THE GENERAL PUBLIC.

# Patio 500®

## Style Information

| Product # | Color               | Mill Style |
|-----------|---------------------|------------|
| 600900500 | Turquoise           | 500        |
| 600900503 | Royal Blue          | 503        |
| 600900504 | Lemon               | 504        |
| 600900505 | Devil Red           | 505        |
| 600900506 | Slate Gray          | 506        |
| 600900508 | Black               | 508        |
| 600900509 | Orange              | 509        |
| 600900510 | Dark Green          | 510        |
| 600900513 | Clear               | 513        |
| 600900514 | Lime Green          | 514        |
| 600900515 | Buff                | 515        |
| 600900516 | Brown               | 516        |
| 600900518 | Dusky Blue          | 518        |
| 600900519 | Rose                | 519        |
| 600900520 | Peach               | 520        |
| 600900521 | English Brown/Beige | 521        |
| 600900522 | Beige               | 522        |
| 600900523 | White               | 523        |
| 600900524 | Eggshell            | 524        |
| 600900525 | English Brown       | 525        |
| 600900526 | Terra Cotta         | 526        |
| 600900527 | Burgundy            | 527        |
| 600900528 | Pewter              | 528        |
| 600900529 | Bright Red          | 529        |
| 600900560 | Pink                | 560        |
| 600900562 | Emerald             | 562        |
| 600900563 | Plum                | 563        |
| 600900564 | Teal                | 564        |
| 600900565 | Reef Blue           | 565        |
| 600900566 | Sunflower           | 566        |
| 600900567 | Jade                | 567        |
| 600900568 | Princess            | 568        |
| 600900569 | Mulberry            | 569        |

## Product Characteristics

|                                   |                                     |
|-----------------------------------|-------------------------------------|
| Ultraviolet resistant             | <input checked="" type="checkbox"/> |
| Heat sealable                     | <input checked="" type="checkbox"/> |
| Mildew resistant                  | <input checked="" type="checkbox"/> |
| Rot resistant                     | <input checked="" type="checkbox"/> |
| California State Fire Marshal     | <input checked="" type="checkbox"/> |
| CPAI-84 (top, sidewall & floor)   | <input checked="" type="checkbox"/> |
| NFPA-701-99                       | <input checked="" type="checkbox"/> |
| Motor Vehicle Safety Standard 302 | <input checked="" type="checkbox"/> |
| ASTM-E-84, Class A                | <input checked="" type="checkbox"/> |

## General Information Statement

Patio 500 is the ideal choice for awnings, canopies and commercial installations and sunny Florida -- an area that puts the best in fabrics to the test.

## Construction Characteristics

|                     |       | Patio 500                           |
|---------------------|-------|-------------------------------------|
| Weight (ounces/yd.) |       | 16.5 +/- .5                         |
| Width (inches)      |       | 61 +/- .25                          |
| Tensile (lbs/in)    | warp  | 270 +/- 20                          |
|                     | fill  | 215 +/- 20                          |
| Tear (lbs)          | warp  | 110 +/- 15                          |
|                     | fill  | 100 +/- 15                          |
| Mullen Burst, psi   |       | 375 +/- 30                          |
| Scrim Count         |       | 9 x 9                               |
| Denier              |       | 1000 x 1000                         |
| Stitch              | Flat  | <input type="checkbox"/>            |
|                     | Round | <input checked="" type="checkbox"/> |
| Embossed            |       | Matte                               |

## Graphics

| System                              | Company       | Product   |
|-------------------------------------|---------------|---|
| Paint                               | Advance       | WBMP and Hip Series   |
|                                     | Sericol       | Tech Mark Series  |
|                                     |               | Tech Mark Series w/ catalyst 10% by wt                      |
|                                     | Akzo Coatings | Grip-Flex Screen Paint Series **                            |
| Grip-Flex Spray Paint Series **     |               |   |
| Grip-Gard VPS (Vinyl Protect. Sys.) |               |   |
| Ink                                 | Ink Dezync    | GY-000 Series (excellent)                                   |
|                                     | Colonial      | Gloss Vinyl Series C99 *                                    |
|                                     | Printing Ink  | Flat Finish Vinyl Series 3900 *                             |
|                                     | Company       | Multigraphic U.V. Series D40 & D47<br>Flexijet Series C34 * |

\* Good cross-hatch/tape adhesion. Marginal scratch adhesion. Suitability s/b determined by its end use.

\*\* Must be topcoated w/ Grip-Gard VPS

## Put-up Specs

One-piece rolls of approx. 50 yard Minor defects flagged

**Comments:** Heat sealable, easily welded. Exceptional dimensional stability.

**Warranty:** 5 year limited, with provisions (see card)

*This information is provided for informational purposes only and does not constitute a certification. This information is accurate at the time of printing and will change over time with product improvements and modifications. Please call your JBC representative for the most recent information. This revision dated 1/7/02*



Insulation Liner



*Quality Control*

*Laboratory Test Report*

Tex Tex

November 21, 2011

| Test:  | Lot 3005031 |
|--|-------------|
| Finished Weight<br>(oz/yd <sup>2</sup> ),<br>ASTM D 3774 | 4.78        |
| Width (inches),<br>GSF Method                            | 60 5/8      |
| Spray,<br>AATCC Method<br>22                             | 90          |
| Hydrostat (cm),<br>AATCC<br>Method 127                   | 37          |
| Chatillon Hand<br>(lbf),<br>ASTM D 4032                  | 2.2         |
| Bag Test   | Pass        |
| Tongue Tear<br>Warp x Fill<br>ASTMD 22561                | 5.8 x 8.9   |
| Tensile<br>Warp x Fill<br>ASTM 5034                      | 143 x 135   |
| CPAI - 84<br>Flame Test                                  | Pass        |
| California State<br>Fire Marshall<br>CA Title 19 1237.1  | Pass        |
| NFPA 701-2010  | Pass        |

**CERTIFICATE OF FLAME RESISTANCE  
ISSUED BY**



DATE: 7/15/2011

**511 Leitner Street  
PO BOX 520  
Graniteville, South Carolina 29829**

This certificate is to certify that the fabric described below and in the corresponding Customer Invoice, issued by GSF, with  
Number PACIFIC YURTS, Applicable Customer Ref./ID Number 6250 and customer to GSF PO# 6108  
has been tested, quality checked and approved in accordance with the standards associated with **CPAI-**

**84,CSFM,CA19,NFPA 701-2010**

**Product**

TEX TEX

**Lot No.**

3004845

**Pattern**

58601

**Color**

WHITE

7/15/2011

Quality Control Laboratory Report Number

Date

A handwritten signature in black ink that reads "Doug Johnson".

Certified By: Doug Johnson Plant Manager



Received:08/27/2007 Completed:09/03/2007 Letter: I rb P.O.#: Test Report #: 2-69607-0-

Client's Identification Pattern No: 58601 "Tex-Tex" White. Content: Coated Polyester. Width: 60". Finish: Vinyl Coating. Weigh (oz/yd<sup>2</sup>): 4.0/4.25

Tested For: Graniteville Specialty Fabrics  
511 Leitner Street  
Graniteville, SC 29829  
Key Test: NFPA 701-2004 TM#2 Flat 210  
Tel: 1-(803)-633-2699 Ext:  
Fax: 1-(803)-663-2839

PC:1H

TEST PERFORMED: NFPA 701 - Standard Methods of Fire Tests for Flame Propagation of Textiles and Films - 2004 Edition - Test Method #2 - Flat Sheet Specimens

SPECIMEN CONFIGURATION:  Single Layer;  Multi Layer

RESULTS REPORTED:  Initially  After 72 hours water leaching  
 After 3 dry cleanings  After 100 hours accelerated weathering  
 After 5 launderings @ 160°F

RESULTS:

| Length Specimen # | Afterflame (seconds) | Drip Burn (seconds) | Char Length (mm) |
|-------------------|----------------------|---------------------|------------------|
| 1                 | 0                    | 0.0                 | 280              |
| 2                 | 0                    | 0.0                 | 270              |
| 3                 | 0                    | 0.0                 | 320              |
| 4                 | 0                    | 0.0                 | 260              |
| 5                 | 0                    | 0.0                 | 280              |
| 6                 | 0                    | 0.0                 | 260              |
| 7                 | 0                    | 0.0                 | 270              |
| 8                 | 0                    | 1.0                 | 260              |
| 9                 | 0                    | 0.0                 | 260              |
| 10                | 0                    | 0.0                 | 270              |

APPROXIMATE WEIGHT OF MATERIAL (as measured by Govmark): 158 g/m<sup>2</sup>

FAILURE CRITERIA: For each individual specimen --

| Afterflame          | Drip Burn           | Char Length            |
|---------------------|---------------------|------------------------|
| Exceeds 2.0 seconds | Exceeds 2.0 seconds | Exceeds 435 mm (17.1") |

RETEST PROVISION: Test 5 additional specimens if only 1 specimen fails.

CONCLUSION: Based on the above Results and Failure Criteria, the item tested:

Passes;  Fails;  Requires testing of 5 additional specimens

CERTIFICATION: I certify that the above results were obtained after testing specimens in accordance with the procedures and equipment specified by NFPA 701 - 2004 Edition Test Method #2 Flat Sheet Specimens.

*Heather E. Robertson*

**MS. HEATHER ROBERTSON**

AUTHORIZED SIGNATURE

THE GOVMARK ORGANIZATION, INC. /jd

(Page 1 of 2)



96-D Allen Boulevard  
 Farmingdale, New York 11735-5626 USA  
 Tel. +1 (631) 293-8944 Fax +1 (631) 293-8956  
 e-mail: Info@govmark.com

|                     |                      |           |    |        |                |            |
|---------------------|----------------------|-----------|----|--------|----------------|------------|
| Received:08/27/2007 | Completed:09/03/2007 | Letter: I | rb | P.O.#: | Test Report #: | 2-69607-0- |
|---------------------|----------------------|-----------|----|--------|----------------|------------|

|                         |  |
|-------------------------|--|
| Client's Identification | Pattern No: 58601 "Tex-Tex" White. Content: Coated Polyester. Width: 60". Finish: Vinyl Coating. Weigh (oz/yd <sup>2</sup> ): 4.0/4.25 |
|-------------------------|--|

|             |  |                                   |      |
|-------------|--|-----------------------------------|------|
| Tested For: | Graniteville Specialty Fabrics<br>511 Leitner Street<br>Graniteville, SC 29829 | Key Test: NFPA 701-2004 TM#2 Flat | 210  |
|             |  | Tel: 1-(803)-633-2699             | Ext: |
|             |  | Fax: 1-(803)-663-2839             |      |

PRECONDITIONING:     1 hr @ 220°F (Standard)  
                               24 hrs @ 68±9°F (Alternate: Material shrinks/distorts @ 220°F)

REMARKS:  
None.

CONVERSION FACTORS:  
 mm + 25.4 = inches  
 g/m<sup>2</sup> + 28.35 x .835 = oz/yd<sup>2</sup>

(Page 2 of 2)



## Reflectix® Insulation

# Technical Information

## RDB1

### Double Bubble Metalized Both Sides

Reflectix® Insulation consists of two outer layers of metalized polyester. Each layer is bonded to a tough layer of polyethylene for strength. Two inner layers of insulating bubbles resist conductive heat flow while a center layer of polyethylene gives Reflectix® high reliability and strength.

#### Technical Data:

|   |                               |
|---|-------------------------------|
| Temperature Range:                          | -60 degrees to +180 degrees F |
| Nominal Thickness:                          | 5/16 inch (.312)              |
| Weight:                                     | 1.25 oz./sq. ft.              |
| * Flame Spread Index (ASTM E 84):           | Less than 25                  |
| * Smoke Developed Index (ASTM E 84):        | Less than 50                  |
| * Fire Rating:                              | Class A/Class 1               |
| Linear Shrinkage:                           | None                          |
| Reflectance (IR):                           | 96%                           |
| Fungi Resistance:                           | No Growth                     |
| Emittance:                                  | 0.04 - 0.045                  |
| Pliability:                                 | No Cracking / No Delamination |
| Bleeding and Delamination:                  | Passed                        |
| Elevated Temperature & Humidity Resistance: |                               |
| Delamination:                               | None                          |
| Corrosion:                                  | None                          |
| Loss of Metalization:                       | None                          |
| Permeance After Aging:                      | 0.024                         |
| Permeance Before Aging:                     | 0.015                         |

P.O. Box 108 • Markleville, IN • 46056  
Phone: (765) 533-4332 or (800) 879-3645 • Fax: (765) 533-2327 • T85

Reflectix Insulation



**CERTIFICATION REPORT OF A**

**STANDARD FLAME SPREAD PROGRAM**

**CONDUCTED ON A**

**THERMAL INSULATING MATERIAL**

**CLIENT:**

**REFLECTIX, INC.  
#1 SCHOOL STREET  
MARKLEVILLE, IN  
46056**

**REPORT PREPARED BY:**

**INTERTEK TESTING SERVICES NA LTD.  
WARNOCK HERSEY  
211 SCHOOLHOUSE STREET  
COQUITLAM, B.C.  
V3K 4X9**

**REPORT NUMBER: 3029843**

**DATE: NOVEMBER 15, 2002  
REVISED: NOVEMBER 21, 2002**

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3. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product or service is or has ever been under an ITS certification program.



**Intertek Testing Services NA Ltd.**  
211 Schoolhouse Street, Coquitlam, BC V3K 4X9 Canada  
Telephone 604-520-3321 Fax 604-524-9188 Home Page [www.etlsemko.com](http://www.etlsemko.com)



Revised: November 21, 2002

## **MATERIAL SPECIFICATIONS**

The material tested was selected by a representative of ITS/Warnock Hersey, and prepared and submitted by the client. The samples consisted of three rolls. Each roll was made up of two layers of aluminium adhered to a layer of polyethylene, two inner layers of bubble, and a center layer of polyethylene. The material was described by the client as Reflectix Insulation, also sold under the private label name "TempShield™". All samples were approximately 24 ft. long by 20-1/2 in. wide by 3/16 in. thick.

## **SAMPLE MOUNTING**

The samples were placed on the upper ledge of the flame spread tunnel on 1/4 in. stainless steel rods, spaced at 24 in. on center, and chicken wire to help support the material during the test. A layer of 6mm reinforced cement board was placed over top of the samples, the lid lowered into place, and then tested in accordance with ASTM E84-01.

### TEST PROCEDURE (*Continued*)

(B) **SMOKE DEVELOPED:**

A photocell is used to measure the amount of light, which is obscured by the smoke passing down the tunnel duct.

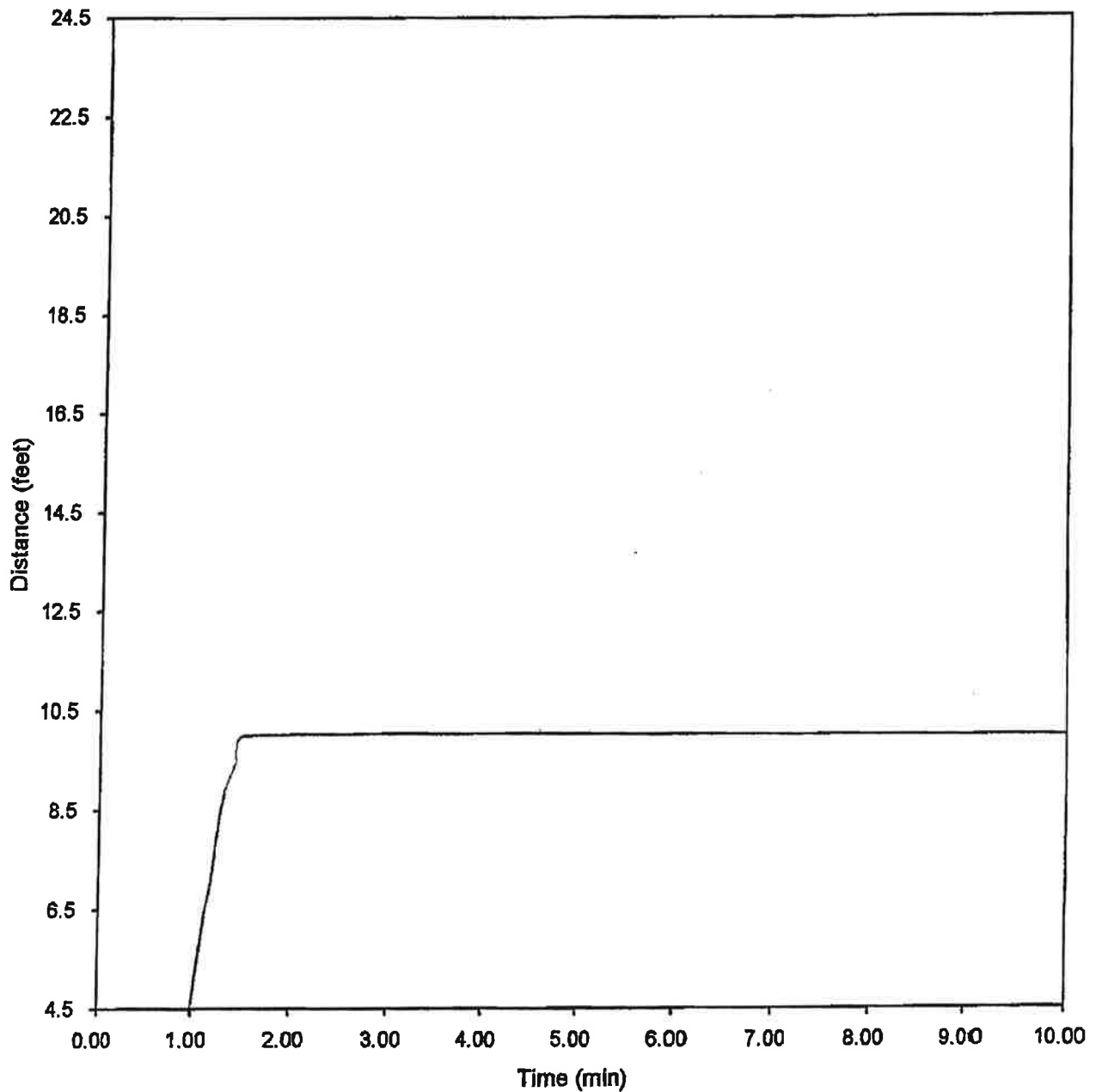
When the smoke from a burning sample obscures the light beam, the output from the photocell decreases. This decrease with time is recorded and compared to the results obtained for red oak, which is 100.

**CALCULATIONS:**

$$\frac{10,000 - (\text{smoke integrator reading}) \times 100}{3356} = \text{smoke developed}$$

**FLAME SPREAD  
DISTANCE IN FEET VS. TIME IN MINUTES**

**Thermal Insulating Material, Run 2  
Flamespread=25, Smoke Developed=22**




### CONCLUSION

The samples of "TempShield™" thermal insulating material, submitted by Reflectix, Inc., exhibited the following flame spread characteristics when tested in accordance with ASTM E84-01, *Standard Test Method for Surface Burning Characteristics of Materials*.

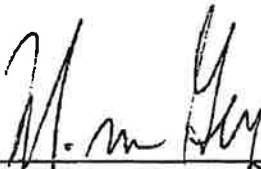
| Sample                      | Flame Spread Classification | Smoke Developed Classification |
|-----------------------------|-----------------------------|--------------------------------|
| Thermal Insulating Material | 25                          | 30                             |

**INTERTEK TESTING SERVICES NA LTD.**  
**Warnock Hersey**

Tested and  
Reported by:

  
\_\_\_\_\_  
Greg Philp  
Technologist  
Fire Laboratory

Reviewed by:

  
\_\_\_\_\_  
Michael van Geyn, A.Sc.T.  
Manager  
Fire Laboratory

TTAQ

GP/bjm