SGS

Tested For:	**Jodi Sawyer**	**Phone:**	(508) 826-2973	**Received:**	2/2/2024
	Flexcon Company	**Fax:**		**Completed:**	2/7/2024
	1 Flexcon Industrial Park	**Mobile:**		**Code:**	Z
	Spencer, MA 01562	**PO#:**		**Test Report:**	3-54665-0
	USA	**Email:**	jsawyer@flexcon.com		

Key Test: ASTM E84 (Int Fin) 785

Client's Identification:

Product Description: Railmark ™ 5372RS.

Test Category: Tunnel Test Specifier: BLDG(IBC): ASTM E 84: LE 2023c V 12/23 BG PC: ME BB /dv

TEST PERFORMED: ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials

REFERENCE: Comparable to: UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials

APPROXIMATE THICKNESS OF SPECIMEN (as measured by SGS North America): 0.005"

SPECIMEN WEIGHT (to include substrate when applicable):

Prior to Conditioning:	88.1 lbs.
Stabilized Weight (taken twice within 24 hours):	88.1 lbs.

PRODUCT CATEGORY:

☐ Textile Type Product
☒ Vinyl Type Product
☐ Other than Textile Type or Vinyl Type Product:

BRIEF DESCRIPTION OF TEST: This test method is used to determine the relative burning behavior of a material under defined test conditions. The test is performed in a 25 ft. long tunnel/duct-like apparatus and is often referred to as the "tunnel test". The test contemplates a calibration where Red Oak burns to the 24 ft. mark in 5.5 minutes ± 15 seconds. During the actual test, a 24 ft. long x 23" wide specimen rests horizontally in a ceiling configuration inside the test chamber facing downward and toward two upward oriented burners. A furnace lid that rests in a water trough seals the chamber tight. A cement board placed on the backside of each specimen assembly protects the furnace lid during the test. The near face of the specimen is subjected to a 4.5 ft. flame insult of approximately 88 kW for ten minutes. The time and distance of the spread of flame along the length of the specimen and the smoke developed as read by the photometric system are all recorded. The Flame Spread and Smoke Developed are reported as an Index.

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SPECIMEN MOUNTING:

☐ Self-supporting: The test specimen was rigid enough to be self-supporting when placed into test position. No additional support was required.

☒ Adhered to IRC: The test specimen was bonded to ¼" Inorganic Reinforced Cement (IRC) boards.

☐ Adhered to Gypsum: The test specimen was adhered to 5/8" thick Type X gypsum board.

☐ Unadhered: The specimen was not adhered to any substrate. Instead, it was laid over a 2" hexagonal wire mesh screen and ¼" rods.

☐ Other:

DISCUSSION: 3.2.1.1: Self-Supporting specimens, after being mounted on the ledges of the test furnace, are structurally capable of supporting their own weight prior to the test and during the test without the use of additional supports. Examples of self-supporting specimen behavior include the ability to do the following without the use of additional supporting elements:

(1) Prior to and during the test, the specimen stays in its position to such an extent that it does not interfere with the effect of the burner flame.
(2) During the test, the specimen does not interrupt the progression of the flame front along the specimen. A specimen may still be considered self-supporting if it sags during the test or if debris falls from the specimen as long as this behavior does not interfere with the progress of the flame front.

SPECIMEN LENGTH: The 24 ft. length was comprised of:

☐ Continuous unbroken 24 ft. length
☒ Sections:
- ☒ Three 8 ft. sections butted end to end
- ☐ Three 8 ft. sections positively joined
- ☐ Four 5 ft. sections and one 4 ft. section butted end to end
- ☐ Other:

ADHESIVE (applied by SGS North America):
- ☐ No
- ☒ Yes - (specify): Self-Stick

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OBSERVATIONS:

- ☒ No unusual observations
- ☐ Burning Drips to Floor further qualified as: ☐ Minor; ☐ Moderate; ☐ Major
- ☐ Delamination
- ☐ Sagging
- ☐ Shrinkage
- ☐ Fallout (specimen displacement from ceiling mount)
- ☐ Other:

REMARKS:

- ☒ None
- ☐ Other:

RESULTS:

Flame Spread Index:	5
Smoke Developed:	5

ROUNDING (Per ASTM E84 Reporting Requirements):

Flame Spread Index value has been rounded to the nearest multiple of 5.
Smoke Developed value has been rounded to:

Raw Data	Rounded
Less than 200	Nearest multiple of 5
200 or more	Nearest multiple of 50

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CONCLUSION: Based on the reported Results and cited Code Classification System, the item tested is assigned a:

- ☒ Class I or A rating
- ☐ Class II or B rating
- ☐ Class III or C rating
- ☐ Fails to achieve a minimum classification thereby rendering the product unsuitable in terms of code requirement
- ☐ Based on product performance*, ASTM E84 is not a suitable test method for the material.

* Severe melt, drip, delamination or other behavior that destroys the continuity of the flame front such that a valid flame spread is unobtainable (See "Remarks")

DATA SUMMARY:

Time to Ignition (minutes:seconds):	00:25
Maximum Flame Spread "Distance" (feet):	1.0
Maximum Flame Spread "Time" (seconds):	51

CODE CLASSIFICATION SYSTEM (Please see "ASTM E84 Limitations"):

Flame Spread Index		Smoke Developed
Class I or A:	0 - 25	450 or less
Class II or B:	26 - 75	450 or less
Class III or C:	76 - 200	450 or less

BUILDING CODE CITATION FOR THE CLASSIFICATION SCHEME:

(1) 2021 edition, NFPA 101 Life Safety Code, para. 10.2.3.4
(2) 2021 edition, NFPA 5000 Building Construction & Safety Code, para. 10.4.2
(3) 2021 edition, International Building Code, para. 803.1.2

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LIMITATIONS OF THE ASTM E84 CLASSIFICATION SCHEME: Most building codes will accept the ASTM E84 classifications when the interior finish product is used in a sprinklered area. Certain local authorities such as NYC have more stringent requirements, i.e. Smoke Developed ranges from a maximum 25 to 100.

If the interior finish product is a textile or vinyl wall covering used in a non-sprinklered area, the NFPA 265 room corner fire test applies.

Certain products which give off excessive heat such as but not limited to cellular plastics, cellular foam (either with or without coverings as applicable), polypropylene, and high density polyethylene should be tested by NFPA 286 - Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth. In SGS North America's opinion, the codes require NFPA 286 for such products, even in sprinklered areas.

CERTIFICATION: I certify that the reported results were obtained after testing specimens in accordance with the procedures and equipment specified above.

DocuSigned by:
Bobby Brown
F7FE1AA2EFE84EE...

2/9/2024

AUTHORIZED SIGNATURE
SGS NORTH AMERICA
/sj /sp

Test Engineer: Jimmy Rosinsky

DS
BB

Enclosure: Graphs

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Program: Steiner Tunnel (Version 1.0.3.0)

Test Method	:	ASTM E84
Report #	:	3-54665-0-Z
Test Date	:	2/7/2024
Client	:	Flexcon Company
Operator	:	Jimmy Rosinsky
Details of Preparation	:	The test specimen was self-stuck to 1/4" Inorganic Reinforced Cement (IRC) boards. The 24 ft. length was comprised of three 8 ft. sections butted end to end.
Observations	:	No unusual observations

Results

Area Under Flame Curve (ft min)	:	9.10
Raw Flame Spread Index	:	4.69
Ignition Time (mm:ss)	:	00:25
Area Under Smoke Curve (%A min)	:	2.23
Raw Smoke Developed Index	:	3.08
Total Gas Flow (ft^3)	:	55.9
Maximum Flame Front Achieved (ft)	:	1.0 @ 51s
Flame Spread Index	:	**5**
Smoke Developed Index	:	**5**
Material Classification	:	**A**

CERTIFICATION : I certify that the above results were obtained after testing the specimens in accordance with the procedures and equipment specified by ASTM E84

Jimmy Rosinsky

AUTHORIZED SIGNATURE

Program: Steiner Tunnel (Version 1.0.3.0)

Test Method : ASTM E84
Test Report # : 3-54665-0-Z