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November 21, 2002

Pactiv Corp.
Mr. Mohammad Zafar
Technology Center
2651 Brickyard Rd.
Canaanadaigua, NY 14424-1026

Our Reference: File R11183, Project 02NK46096

Subject: Report of Surface Burning Characteristics of "1/4 in. Astro Board" Polystyrene.

Dear Mr. Zafar:

This letter is a Report summarizing the results of Surface Burning Characteristics tests conducted on 1/4 in. "Astro Board" Polystyrene under Assignment 02NK46096.

SAMPLES:

The samples consisted of your 1/4 in. fanfold, faced with a white film on one side and a metallized polypropylene on the other side. The product is identified as "Astro-Board".

METHOD:

The tests were conducted in accordance with Standard ANSI/UL 723, Eighth Edition, dated July 11, 1996, "Test for Surface Burning Characteristics of Building Materials," (ASTM E84-01).

The test determines the Surface Burning Characteristics of the test material, specifically the flame spread and smoke developed indices when exposed to fire.

The maximum distance the flame spreads along the length of the sample from the end of the igniting flame is determined by observation. The Flame Spread Index (FSI) of the material is determined by rounding the Calculated Flame Spread (CFS) as described in UL 723. The CFS is derived by plotting the progression of the flame front on a time-distance scale, ignoring any flame front recession, and using one of the calculation methods as described below:

- A. $CFS = 0.515 A_t$ when A_t is less than or equal to 97.5 minute-foot.
- B. $CFS = 4900/(195-A_t)$ when A_t is greater than 97.5 minute-foot.

Where A_t = total area under the time distance curve expressed in minute-foot.

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R11183
 November 21, 2002
 Pg. 2
 FFCorr/R11183Nov3
 11053

The Smoke Developed Index (SDI) is determined by rounding the Calculated Smoke Developed (CSD) as described in UL 723. The CSD is determined by the output of a photoelectric circuit operating across the furnace flue pipe. A curve is developed by plotting values of light absorption (decrease in cell output) against time. The CSD is derived by expressing the net area under the curve for this material as the percentage of the area under the curve for untreated red oak.

The CSD is expressed as:

$$CSD = (A_m / A_{ro}) \times 100$$

Where:

- CSD = Calculated Smoke Developed
- A_m = The area under the curve for the test material.
- A_{ro} = The area under the curve for untreated red oak.

RESULTS:

The results as tabulated below are considered applicable only to the specific samples tested.

Data sheets and graphical plots of flame travel versus time and smoke developed versus time are also enclosed.

FLAME SPREAD INDEX

Test No.	Sample	CFS Calculated Flame Spread (Ceiling)	FST Flame Spread Index (Ceiling)+	CFS Calculated Flame Spread (Floor)	FSI Flame Spread Index (Floor)++
1.	Astro-Board-Metalized Side Exposed.	2.51	5	4.50	5
2.	Astro-Board-White Side Exposed.	2.51	5	2.40	0
3.	Astro-Board- White Side Exposed.	4.98	5	2.30	0

+ - Flame spread recorded while material remained in the original test position.

++ - Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated flame spread index indicated.

R11183
 November 21, 2002
 Pg. 3
 FPCorr/R11183Nov3
 11055

SMOKE DEVELOPED INDEX

Test No.	Sample	CSD Calculated Smoke Developed (Prior to Floor Ignition)	SDI Smoke Developed Index (Prior to Floor Ignition)	CSD Calculated Smoke Developed (Entire Test Duration)	SDI Smoke Developed Index (Entire Test Duration)
1.	Astro-Board-Metallized Side Exposed	0.0	0	324.0	300
2.	Astro-Board-White Side Exposed	0.0	0	344.7	350
3.	Astro-Board-White Side Exposed	0.0	0	322.2	300

SURFACE BURNING CHARACTERISTICS CLASSIFICATION:

Based on the above test results, the following Classification could be established for the products submitted.

	Surface Burning Characteristics
	1/4 in. Maximum +
Flame Spread	5#
Smoke Developed	0#

- - Installed in a thickness, or stored in an effective thickness, as indicated; for a density of 2.3 pcf.
- # - Flame spread and smoke developed recorded while material remained in the original test position. Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated flame spread index of 5 and smoke developed index of 350.

The Classification Marking of Underwriters Laboratories Inc. on the product is the only method provided by Underwriters Laboratories Inc. to identify products which have been produced under its Classification and Follow-Up Service Program.

R11183
November 21, 2002
Pg. 4
FPCorr/R11183Nov2
11055

Due to the fact this completes all work under the investigation, we have closed the assignment and instructed our Accounting Department to bill you for the charges incurred.

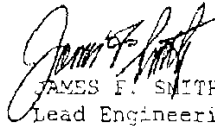
Should you have any questions or comments on the above, please do not hesitate to contact the undersigned.

Sincerely,

Reviewed by:



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Engineering Associate
Fire Protection Division



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