August 23, 2019

Safti Seal Inc
Mr. Jim Klein
6200 119th Pl SE
Bellvue, WA, 98006, US

Our Reference: R25833 / 4789064252

Subject: Report Of Surface Burning Characteristics Tests On Sealants As Submitted By Safti Seal Inc.

Dear Mr. Klein:

This is a Report summarizing the results of tests conducted under the Commercial Inspection and Testing Services (CITS) program of UL LLC (UL) identified as Assignment No. 4789064252.

GENERAL:

The results relate only to items tested.

METHOD:

Each test was conducted in accordance with Standard ANSI/UL723, Eleventh Edition, dated April 19, 2018, "Test for Surface Burning Characteristics of Building Materials", (ASTM E84).

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

The maximum distance the flame travels along the length of the sample from the end of the igniting flame is determined by observation. The Flame Spread Index of the material is derived by plotting the progression of the flame front on a time-distance basis, ignoring any flame front recession, and using the equations 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.

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 photoelectric equipment operating across the furnace flue pipe. A curve is developed by plotting the values of light absorption (decrease in cell output) against time. The CSD is derived by expressing the net area under the curve for the material tested as a 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.

SAMPLES:

The samples utilized in this investigation were neither prepared nor selected by a Laboratories' representative such that no verification of composition can be provided.

Sample Description

Test No.	System
1	Black Strip Sealant
2	White Strip Sealant

In all cases, the samples were prepared by applying them to 1/4 in. thick inorganic reinforced cement board in two strips, eight inches on center.

Each test sample consisted of three 8 by 2 ft wide cement boards butted end-to-end to form the required 24 ft. long surface.

RESULTS:

The results are 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.

Table 1: Test Summary

Test No.	Test Code	Sample Description	CFS Calculated Flame Spread	FSI Flame Spread Index	CSD Calculated Smoke Developed	SDI Smoke Developed Index
1	08211906	Black Strip Sealant	0.00	0	0.0	0
2	08211907	White Strip Sealant	0.00	0	0.1	0

The Classification Marking of UL on the product is the only method provided by UL to identify products which have been produced under its Classification and Follow-Up Service. No use of a Classification Marking has been authorized as a result of this investigation.

Since the anticipated work has been completed, we have instructed our Accounting Department to terminate the investigation and invoice you for the charges incurred to date.

Should you have any questions, please contact the undersigned.

Very truly yours

Robert S. Kiefer (ext. 42014)
Senior Engineering Associate
Fire Protection Division

Reviewed by:

James F. Smith (ext. 42666)
Staff Engineering Associate
Fire Protection Division

Project:	4789064252	File:	R25833	TestCode:	08211906
Tested by:	ABRAN GARCIA	Engineer:	ROBERT KIEFER	Date:	2019-08-21

TEST METHOD: The test was conducted in accordance with UL 723, Eleventh Edition (2018/04/19).

Client Name:	Safti Seal Inc.				
Test Duration	10 minutes	Test No.:	1	Hot Test:	No
Mounting:	RCB	Test Type:	CITS	Burn-Out Required:	No

Test Sample: Black Strip sealant

FLAME SPREAD RESULTS

Flame Spread Data

Distance (Feet)		Time (Sec)
Ignition		262

Calculated Flame Spread (CFS): 0.00
Flame Spread Index (FSI): 0

Time to Ignition (sec): 262
Maximum Flame Spread (ft): 0.0
Area Under the Flame Spread Curve (ft.-min): 0.0

SMOKE RESULTS

Calculated Smoke Developed (CSD): 0.0
Smoke Developed Index (SDI): 0

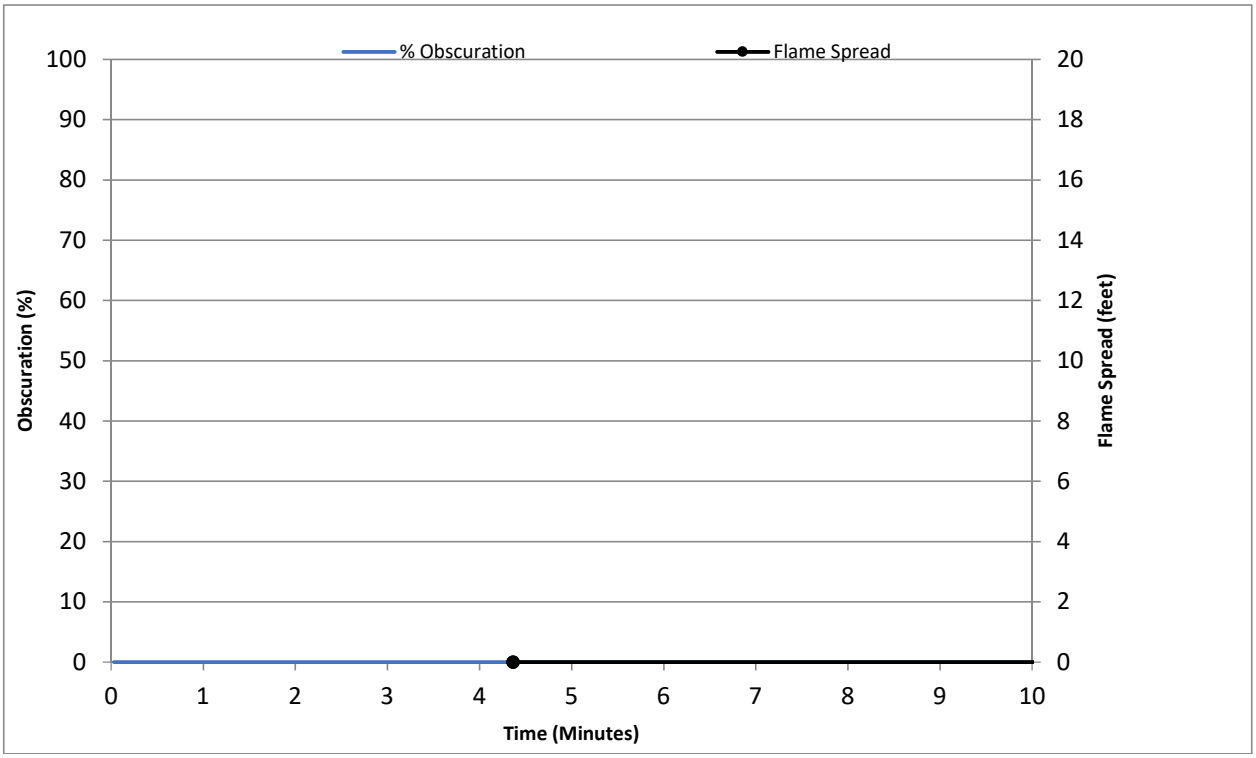
Area Under the Smoke Curve (Obs-min.): 0.00
Area Under Heptane Curve (Obs-min.): 97.17

Post-Test Observations

Char (Feet From Burner): 8

Flame Spread / Smoke Results

Safti Seal Inc.
Black Strip Sealant



Test Num.: 1
R25833 / 4789064252
08211906

Flame Spread Index: 0
Smoke Developed Index: 0
Max. Flame Spread (ft.): 0.0

Project:	4789064252	File:	R25833	TestCode:	08211907
Tested by:	ABRAN GARCIA	Engineer:	ROBERT KIEFER	Date:	2019-08-21

TEST METHOD: The test was conducted in accordance with UL 723, Eleventh Edition (2018/04/19).

Client Name:	Safti Seal Inc.				
Test Duration	10 minutes	Test No.:	2	Hot Test:	No
Mounting:	RCB	Test Type:	CITS	Burn-Out Required:	No

Test Sample: White Strip sealant

FLAME SPREAD RESULTS

Flame Spread Data

Distance (Feet)		Time (Sec)
Ignition		8

Calculated Flame Spread (CFS): 0.00
Flame Spread Index (FSI): 0

Time to Ignition (sec): 8
Maximum Flame Spread (ft): 0.0
Area Under the Flame Spread Curve (ft.-min): 0.0

SMOKE RESULTS

Calculated Smoke Developed (CSD): 0.1
Smoke Developed Index (SDI): 0

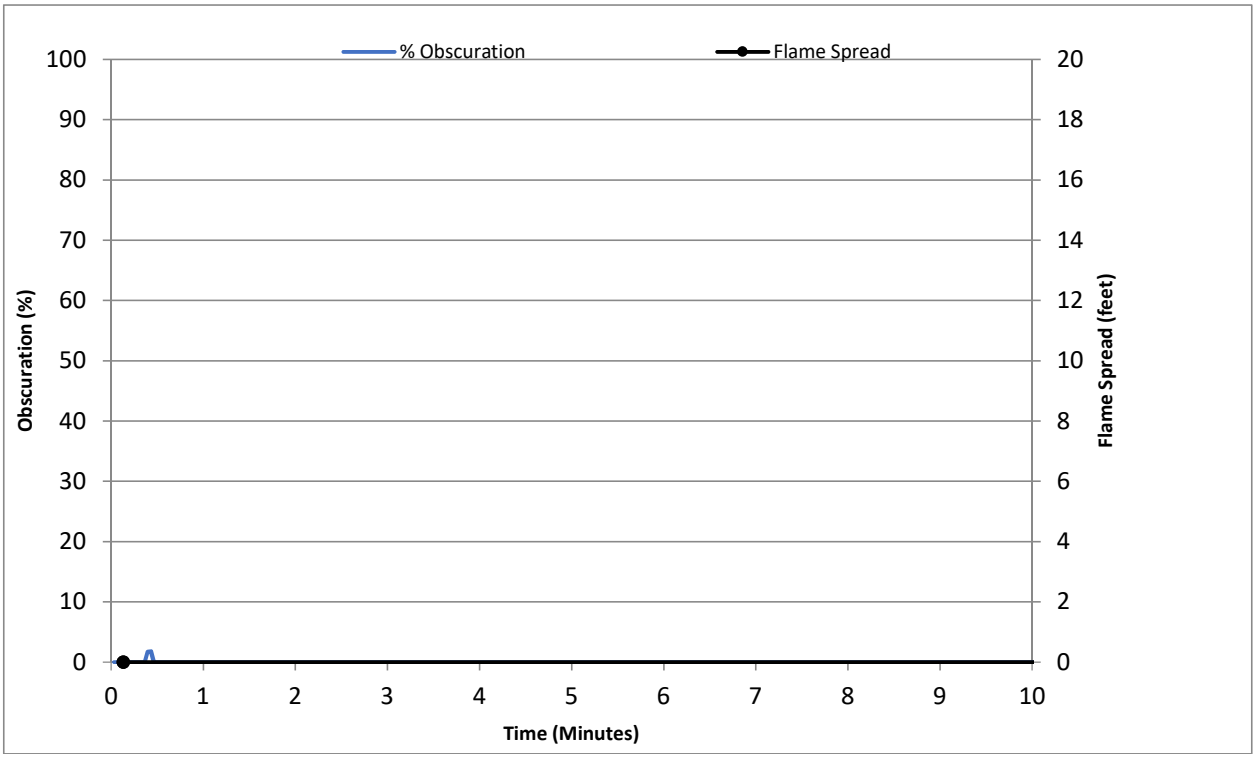
Area Under the Smoke Curve (Obs-min.): 0.12
Area Under Heptane Curve (Obs-min.): 97.17

Post-Test Observations

Discoloration (Feet From Burner): 24
Melt (Feet From Burner): 22
Char (Feet From Burner): 8

Flame Spread / Smoke Results

Safti Seal Inc.
White Strip Sealant



Test Num.: 2
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08211907

Flame Spread Index: 0
Smoke Developed Index: 0
Max. Flame Spread (ft.): 0.0