July 01, 2015
Revised October 14, 2015

Mrs. Betul Baskaya
AFS BORU SANAYI A S
Ivedik O S B
1468 Cad Eski 24 Cad No 153
Ostim , Ankara 06370
Turkey

Our Reference: TBD/4786962688

Subject: Report Of Surface Burning Characteristics Tests on Air duct Isolation vibration connector fabric Samples as Submitted by AFS BORU SANAYI A S

Dear Mrs. Baskaya:

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. 4786962688.

GENERAL:

The results relate only to items tested.

METHOD:

Each test was conducted in accordance with Standard ANSI/UL723, Tenth Edition, dated September 10, 2008 with revisions through August 12, 2013, "Test for Surface Burning Characteristics of Building Materials", (ASTM E84-11).

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	PU Forte Air duct Isolation vibration connector fabric
2	Neoprene Forte Air duct Isolation vibration connector fabric

Each test sample was supported by 2 in. hexagonal poultry netting supported by 1/4 in. diameter steel rods spaced 2 ft apart.

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	06301512	PU Forte Air duct Isolation vibration connector fabric	4.82	5	73.4	75
2	06301513	Neoprene Forte Air duct Isolation vibration connector fabric	0.00	0	15.2	15

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

Jamila Shawon

Jamila Shawon (ext. 42607)

Building Materials & Systems

Reviewed by:

James Smith (ext. 42666)

Building Materials & Systems

Project:	4786962688	File:	TBD	TestCode:	06301512
Tested by:	TIMOTHY WAGNER	Engineer:	JAMILA SHAWON	Date:	2015-06-30

TEST METHOD: The test was conducted in accordance with UL 723, Tenth Edition.

Client Name:	AFS BORU SANAYI A S				
Test Duration	10 minutes	Test No.:	1	Hot Test:	No
Mounting:	Rods & Wire	Test Type:	Developmental	Burn-Out Required:	No

Test Sample: PU Forte Air duct Isolation vibration connector fabric

FLAME SPREAD RESULTS

Flame Spread Data

Distance (Feet)		Time (Sec)
Ignition		30
0.5		38
1		46

Calculated Flame Spread (CFS): 4.82
Flame Spread Index (FSI): 5

Time to Ignition (sec): 30
Maximum Flame Spread (ft): 1.0
Area Under the Flame Spread Curve (ft.-min): 9.4

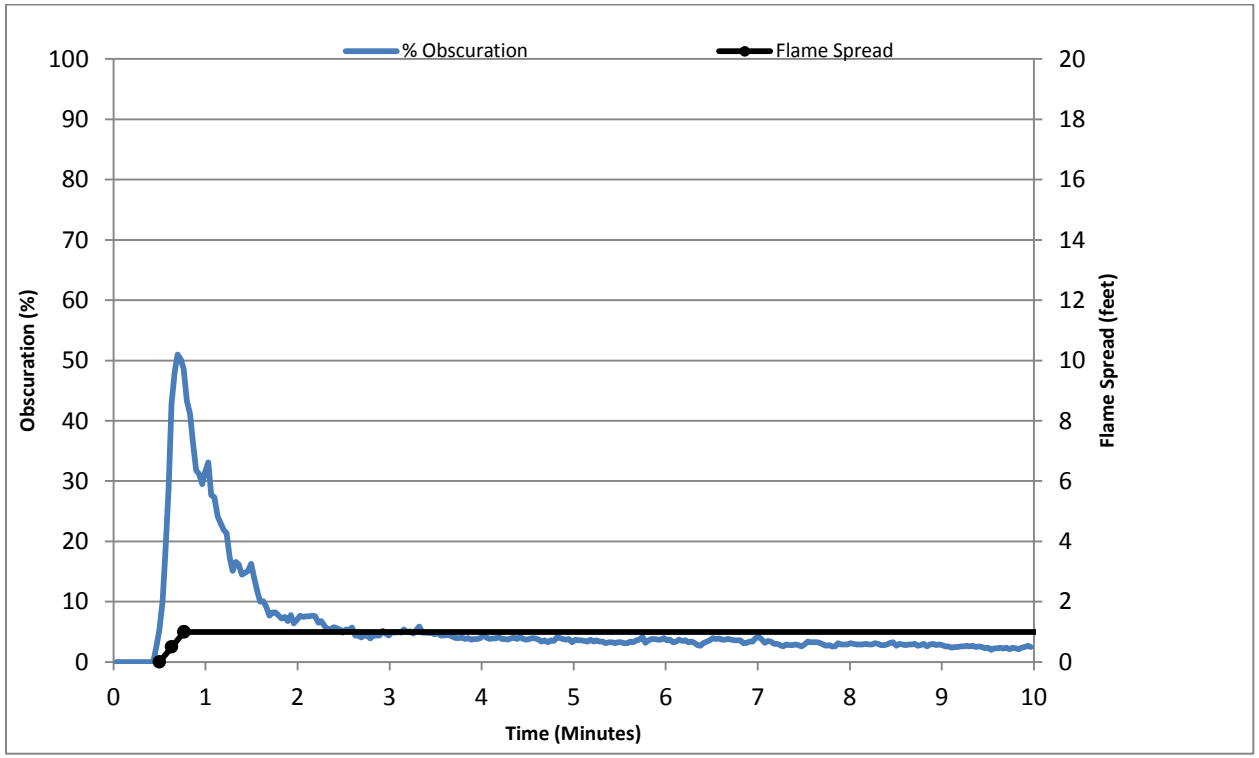
SMOKE RESULTS
Calculated Smoke Developed (CSD): 73.4
Smoke Developed Index (SDI): 75

Area Under the Smoke Curve (Obs-min.): 62.11
Area Under Red Oak Curve (Obs-min.): 84.63

Post-Test Observations
Discoloration (Feet From Burner): 24
Char (Feet From Burner): 6

Flame Spread / Smoke Results

AFS BORU SANAYI A S
PU Forte Air duct Isolation vibration connector fabric



Test Num.: 1
TBD / 4786962688
06301512

Flame Spread Index: 5
Smoke Developed Index: 75
Max. Flame Spread (ft.): 1.0

Project:	4786962688	File:	TBD	TestCode:	06301513
Tested by:	TIMOTHY WAGNER	Engineer:	JAMILA SHAWON	Date:	2015-06-30

TEST METHOD: The test was conducted in accordance with UL 723, Tenth Edition.

Client Name:	AFS BORU SANAYI A S				
Test Duration	10 minutes	Test No.:	2	Hot Test:	No
Mounting:	Rods & Wire	Test Type:	Developmental	Burn-Out Required:	No

Test Sample: Neoprene Forte Air duct Isolation vibration connector fabric

FLAME SPREAD RESULTS

Flame Spread Data

Distance (Feet)		Time (Sec)
Ignition		36

Calculated Flame Spread (CFS):	0.00
Flame Spread Index (FSI):	0
Time to Ignition (sec):	36
Maximum Flame Spread (ft):	0.0
Area Under the Flame Spread Curve (ft.-min):	0.0

SMOKE RESULTS

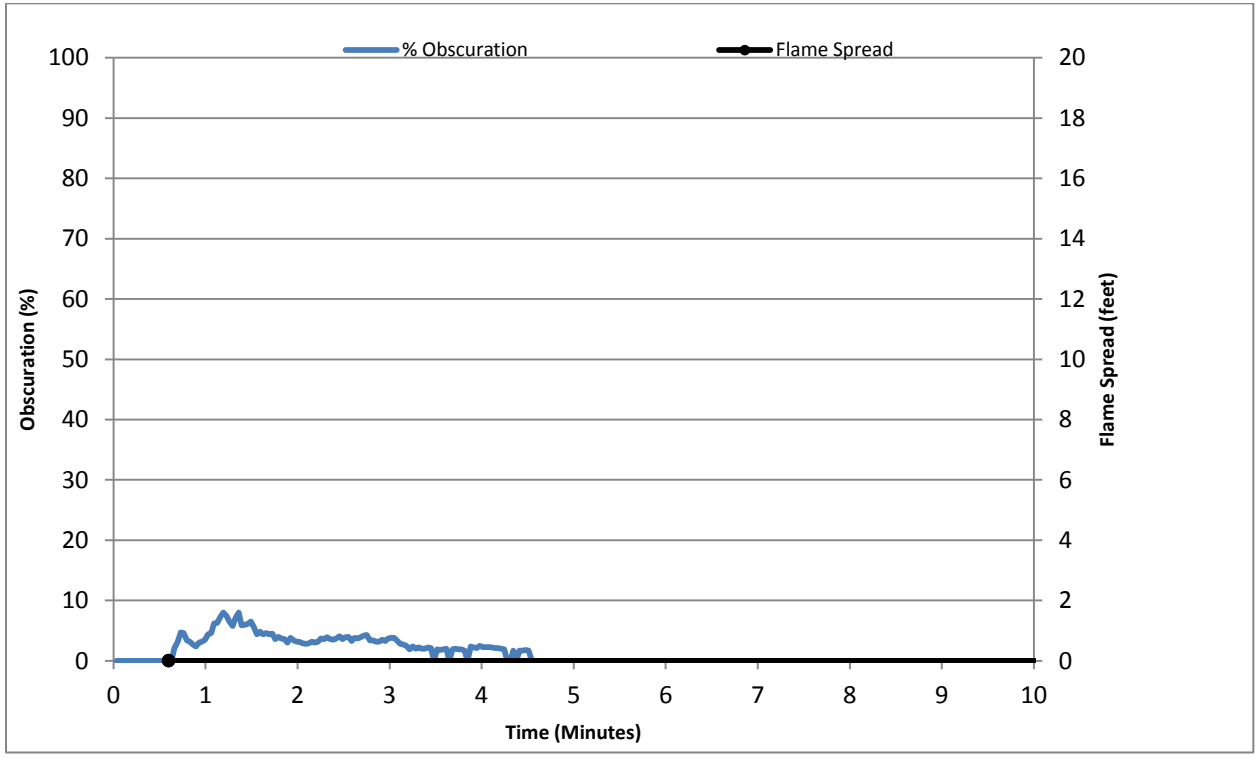
Calculated Smoke Developed (CSD):	15.2
Smoke Developed Index (SDI):	15
Area Under the Smoke Curve (Obs-min.):	12.87
Area Under Red Oak Curve (Obs-min.):	84.63

Post-Test Observations

Discoloration (Feet From Burner):	24
Char (Feet From Burner):	6

Flame Spread / Smoke Results

AFS BORU SANAYI A S
Neoprene Forte Air duct Isolation vibration connector fabric



Test Num.: 2
TBD / 4786962688
06301513

Flame Spread Index: 0
Smoke Developed Index: 15
Max. Flame Spread (ft.): 0.0