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File R18932
Project 98NK22379

June 14, 1999

REPORT

on

DISTRIBUTION DEVICE, AIR

Under The

CLASSIFICATION PROGRAM

K. E. Fibertec AS
Vejen, Denmark

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A not-for-profit organization
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committed to quality service

DESCRIPTION

PRODUCT COVERED:

*The products covered by this Report are air distribution device material identified as "Textile Duct KE-Low Impulse®/KE-Interior®" and "Textile Duct Plenum Material with KE-DireJet® Nozzles."

The products are Classified as to flammability requirements only as described in NFPA 90A-1993.

USE:

The products are intended for use in building ventilation systems as permitted by authorities having jurisdiction.

TEST RECORD NO. 1

EXAMINATION OF MATERIALS:

The materials used in this investigation were produced under the observation of a representative of Underwriters Laboratories Inc., in a ready-to-use form. The composition of the finished materials is of a proprietary nature. Data on the composition is on file at the Laboratories for use in the Follow-Up Service Program.

Various physical and chemical tests were conducted on the components and finished products. The results developed from these tests were employed in establishing specifications for use in the factory Follow-Up Service Program.

SURFACE BURNING CHARACTERISTICS:

SAMPLES

*The samples consisted of Textile Duct KE-Low Impulse®/KE-Interior®" manufactured with polyester/trevira CS fabric and "Textile Duct Plenum Material with KE-DireJet® Nozzles" with nozzle manufactured with polyester fabric.

Each test sample consisted of a length 24 ft long by 24 in. wide of the finished product.

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

For each test a piece of 1 ft long by 22 in. wide by 1/16 in. thick* uncoated steel plate was placed at the fire end of the tunnel furnace "upstream" from the gas burners to complete the 25 ft chamber length.

METHOD

The tests were conducted in accordance with the Standard of Underwriters Laboratories Inc. for Test for Surface Burning Characteristics of Building Materials, UL 723.

RESULTS

Data on flame spread and smoke developed appears in the following tabulations. Graphs of flame spread versus time and smoke developed versus time are also provided as part of the Test Record.

Flame Spread Index

The maximum distance the flame spreads along the length of the sample from the end of the igniting flame is determined by observation.

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Upon exposure to the igniting flame, the samples softened, melted, and fell to the furnace floor beginning first in the area of the igniting flame. *Ignition of the matter residue on the furnace floor occurred in Tests 2 and 3.

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 calculating the area under the flame spread distance (ft) versus time (min) curve, ignoring any flame front recession, and using one of the calculation methods as described below.

1. If the total area (A_T) is less than or equal to 97.5 min-ft, the CFS shall be 0.515 times the total area ($FSI = 0.515 A_T$).
2. If the total area (A_T) is greater than 97.5 min-ft, the CFS is to be 4900 divided by 195 minus the total area [$FSI = 4900/(195 - A_T)$].

Test No.	*Sample Description	Maximum Ceiling Flame Spread (ft)	CFS Calculated Flame Spread (Ceiling)	FSI Flame Spread Index (Ceiling)+	Ignition Time on Floor (min:s)	Maximum Floor Flame Spread (ft)	CFS Calculated Flame Spread (Floor)	FSI Flame Spread Index (Floor)++
1	Textile Duct KE-Low Impulse®/KE-Interior®	0.5	2.28	0	-	-	-	-
2	Textile Duct Plenum Material with KE-DireJet® Nozzles	0.5	2.51	5	8:20	0.0	0.0	0
3	Textile Duct Plenum Material with KE-DireJet® Nozzles	1.0	3.69	5	8:05	0.0	0.0	0
4	Textile Duct KE-Low Impulse®/KE-Interior®	0.0	0.0	0	-	-	-	-

+ - Flame Spread Index 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.

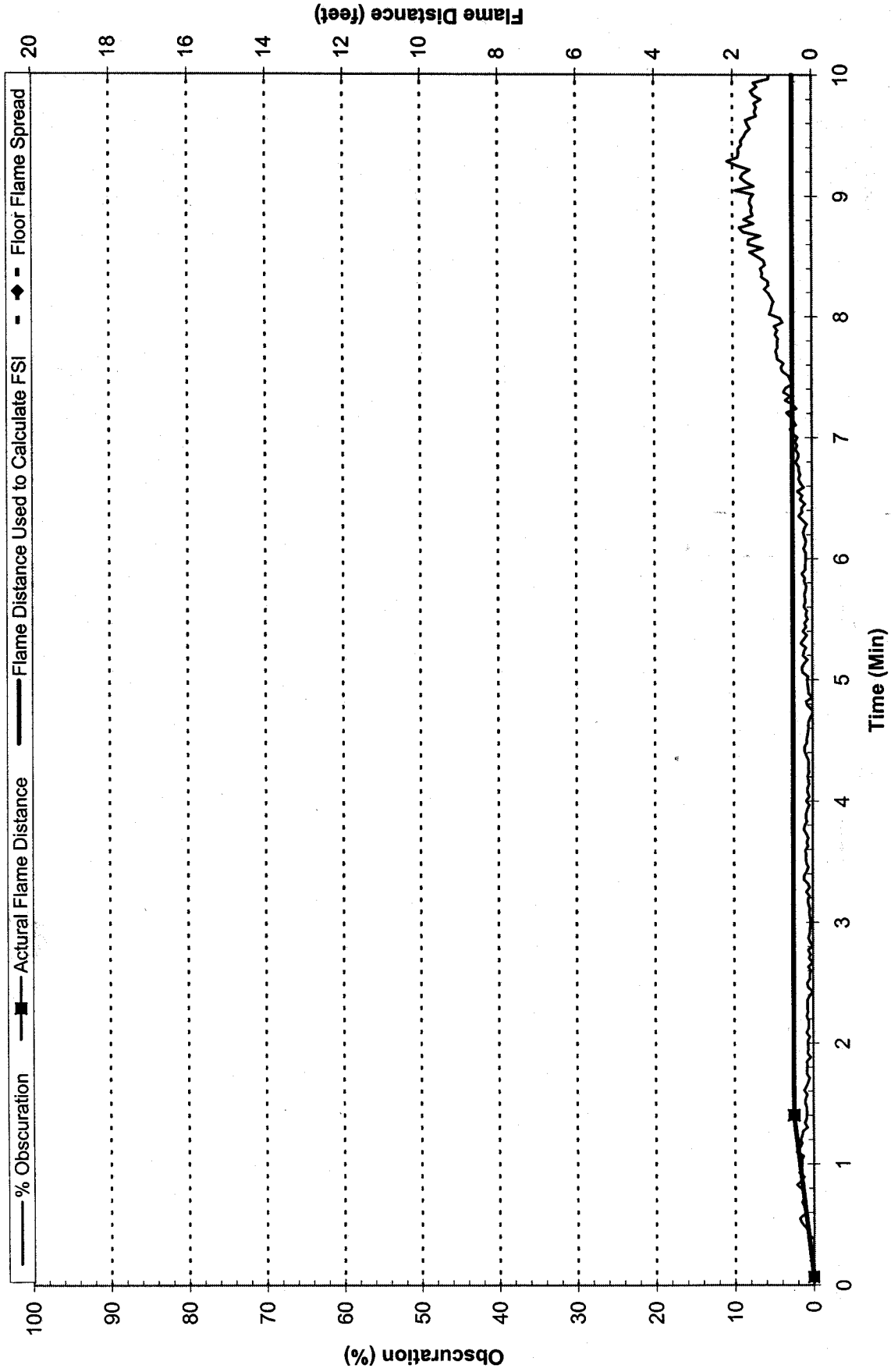
Smoke Developed Index

The Smoke Developed Index 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 a percentage of the net area under the curve for untreated red oak.

Test No.	*Description	CSD Calculated Smoke Developed (Prior to Floor Ignition)	SDI Smoke Developed Index (Prior to Floor Ignition)	CSD Calculated Smoke Developed (Entire Test Duration)	SDF Smoke Developed Index (Entire Test Duration)
* 1	Textile Duct KE-Low Impulse®/KE-Interior®	33.8	35	33.8	35
2	Textile Duct Plenum Material with KE-DireJet® Nozzle	58.68	60	107.5	110
3	Textile Duct Plenum Material with KE-DireJet® Nozzle	16.9	15	67.2	65
* 4	Textile Duct KE-Low Impulse®/KE-Interior®	25.0	25	25.0	25

Flame Spread / Smoke Results

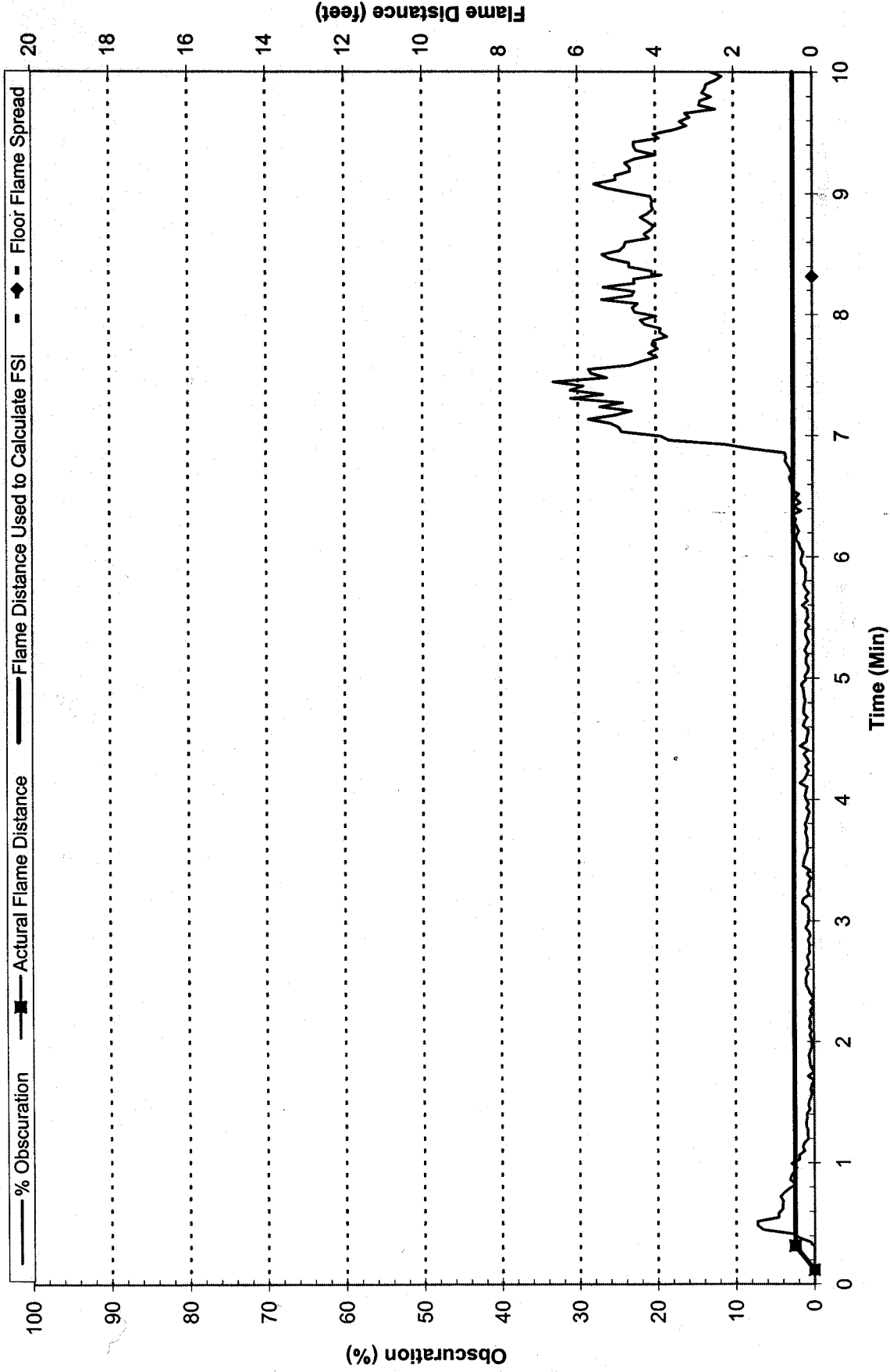
K.E. FIBERTEC
TEXTILE DUCT WHITE



Flame Spread Index = 0
Smoke Developed Index = 35
Max Flame Spread = 0.5 ft.

Flame Spread / Smoke Results

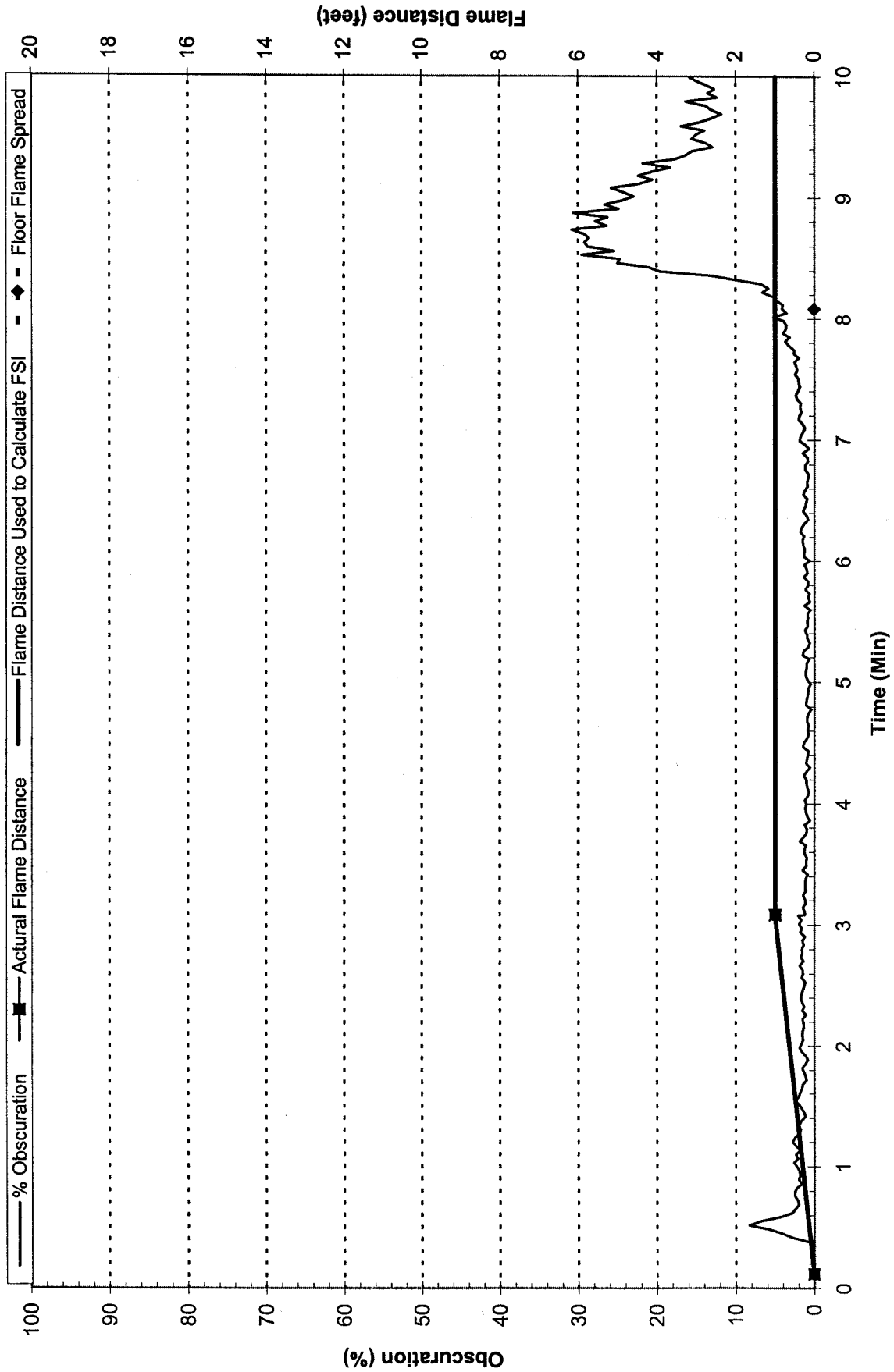
K.E. FIBERTEC
TEXTILE DUCT BLUE



Flame Spread Index = 5
Smoke Developed Index = 110
Max Flame Spread = 0.5 ft.

Flame Spread / Smoke Results

K.E. FIBERTEC
NOZZLE TEXTILE DUCT BLUE

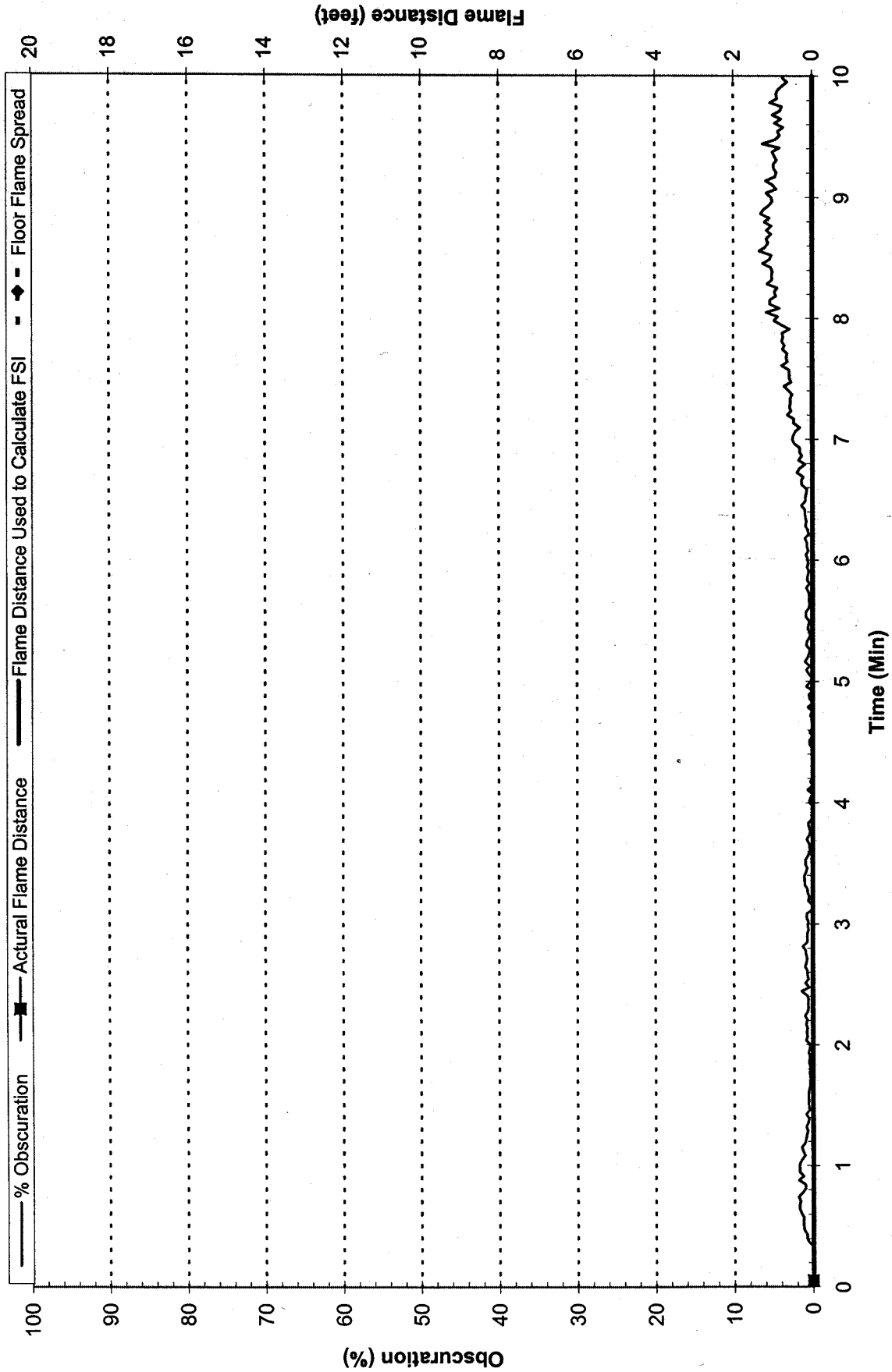


Flame Spread Index = 5
Smoke Developed Index = 65
Max Flame Spread = 1 ft.

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Test No. 4

Flame Spread / Smoke Results

K.E. FIBERTEC
TEXTILE DUCT WHITE



Flame Spread Index = 0
Smoke Developed Index = 25
Max Flame Spread = ft.

CONCLUSION

The following conclusions represent the judgement of Underwriters Laboratories Inc. based upon the results of the examination and tests presented in this Report.


NFPA 90A-1993, "Installation of Air Conditioning and Ventilation systems" requires air outlets to be constructed of noncombustible material or material that has Flame Spread and Smoke Developed ratings less than or equal to 25 and 50, respectively.

The products covered by this Report are judged to be eligible for Classification and Follow-Up Service. The manufacturer is authorized to use the Laboratories' Classification Marking as shown below on such products which comply with the Follow-Up Procedure and any other applicable requirements of Underwriters Laboratories Inc. Only those products which properly bear the Laboratories' Classification Marking are considered as Classified by Underwriters Laboratories Inc.

CLASSIFICATION MARKING:

UNDERWRITERS LABORATORIES INC. ®
CLASSIFIED
DISTRIBUTION DEVICE AIR
IN ACCORDANCE WITH FLAMMABILITY REQUIREMENTS
OF NFPA 90A-1993

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