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File R4079  
Project 99NK16457

July 30, 1999

REPORT

on

Reinforced Plastic

Under The

CLASSIFICATION PROGRAM

Kemlite Co., Inc.  
Joliet, IL

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JGM/JH:mes  
NKDLS

A not-for-profit organization  
dedicated to public safety and  
committed to quality service

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

Samples consisted of nominal 0.09 in. thick fiberglass reinforced plastic, embossed on one surface.

Each test sample consisted of six 4 by 2 ft wide panels butted end-to-end to form the required 24 ft long surface.

Each test sample was supported with 1/4 in. diameter uncoated steel rods and placed at 2 ft intervals.

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.

The test samples were allowed to condition at a temperature of  $73 \pm 4^{\circ}\text{F}$  and a relative humidity of  $50 \pm 5$  percent prior to testing.

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.

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.	Test Sample	Maximum Flame Spread (ft)	Time of Maximum Flame Spread (min:s)	CFS Calculated Flame Spread	FSI Flame Spread Index
1	FIRE -X GLASBORD™ FX-.09"	3.5	4:00	14.4	15.0
2	FIRE -X GLASBORD™ FX-.09"	3.5	3:50	14.3	15.0

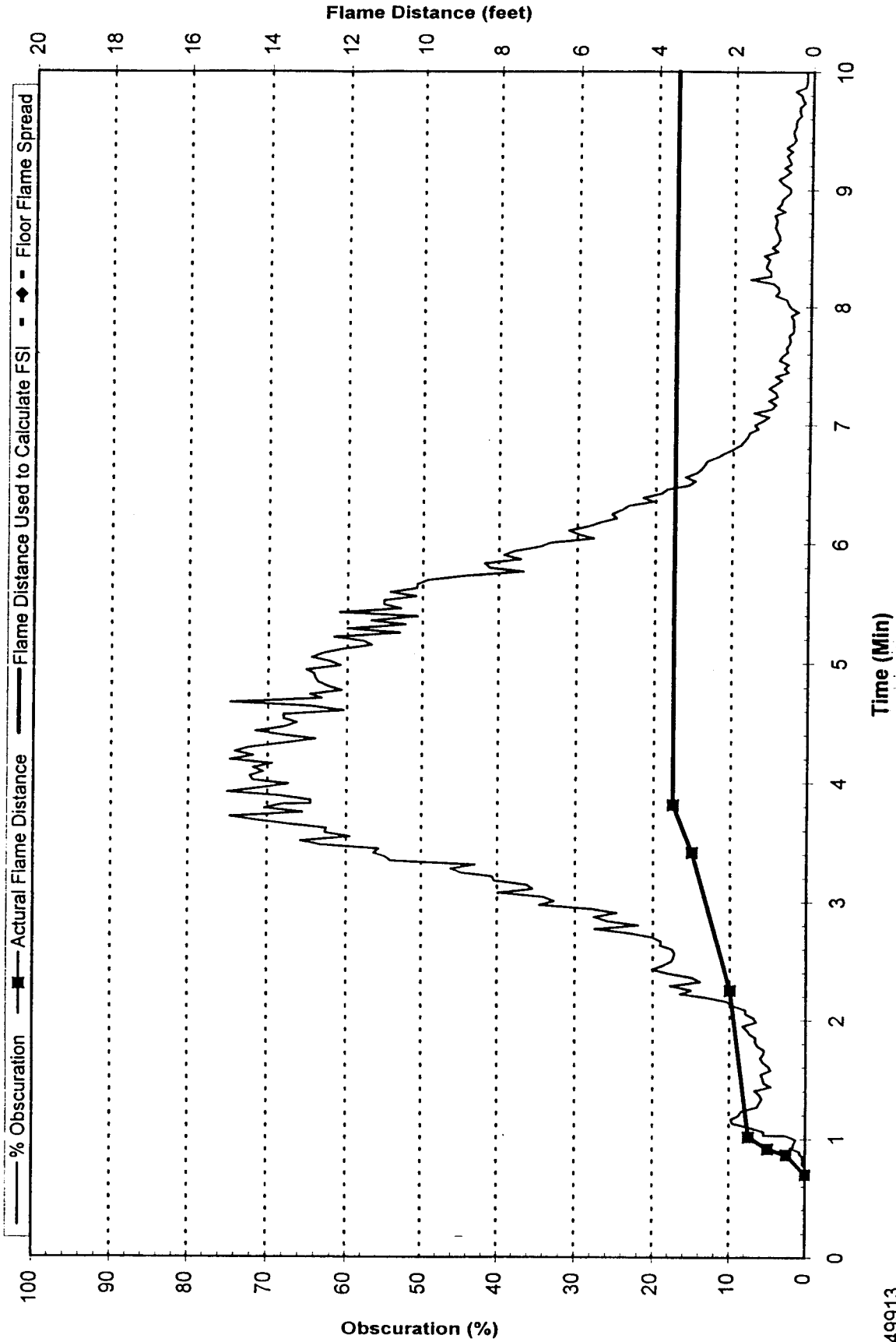
## Smoke Developed Index

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.	Test Sample	CSD Calculated Smoke Developed	SDI Smoke Developed Index
1	FIRE-X GLASBORD™ FX-.09"	298.9	300
2	FIRE-X GLASBORD™ FX-.09"	325.3	350

# Flame Spread / Smoke Results

KEMLITE  
REINFORCED PLASTIC

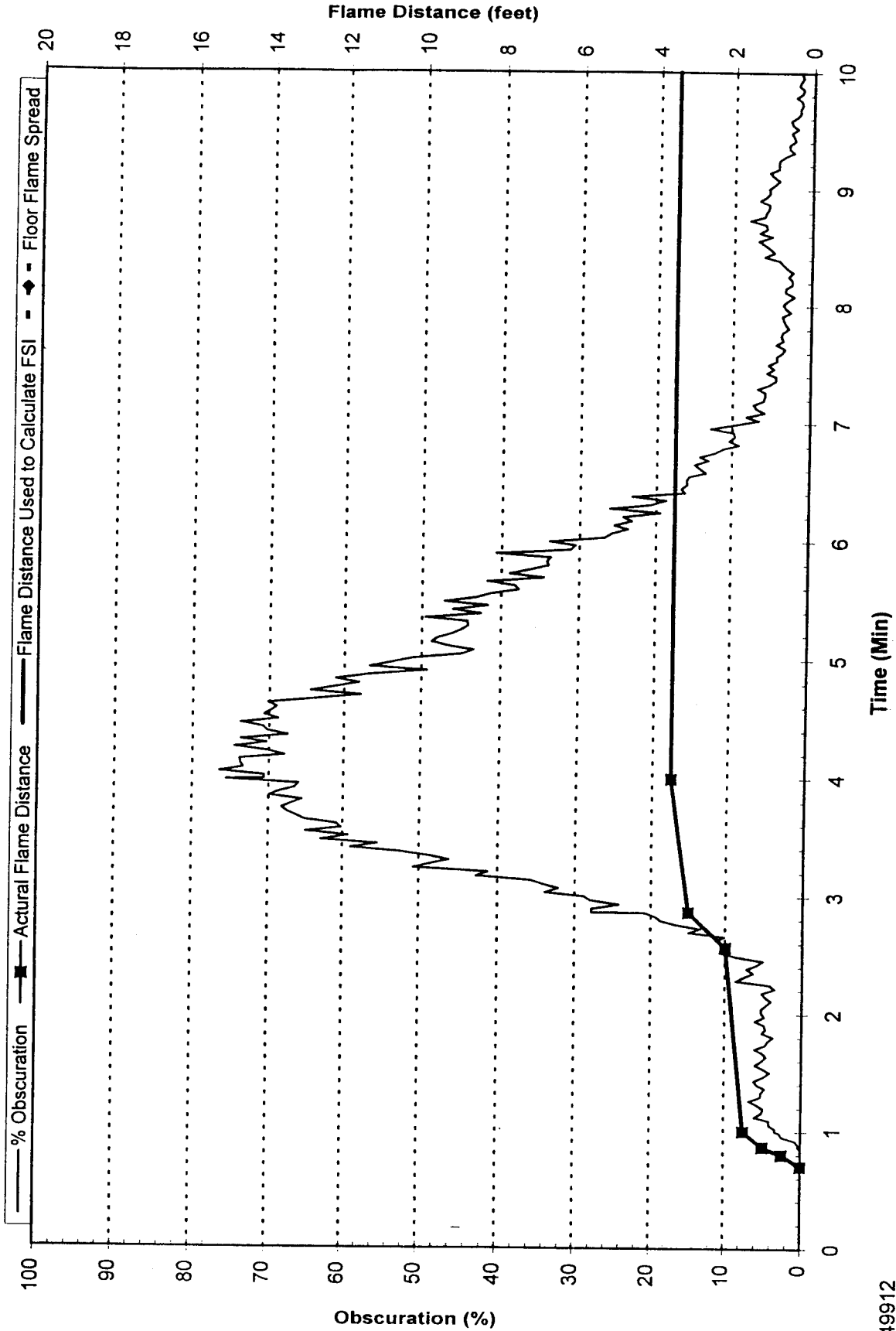


05049913  
R4079 / 99NK16457  
Test No. 2  
Test Location: North

Flame Spread Index = 15  
Smoke Developed Index = 350  
Max Flame Spread = 3.5 ft.

# Flame Spread / Smoke Results

KEMLITE  
REINFORCED PLASTIC



05049912  
R4079 / 99NK16457  
Test No. 1  
Test Location: North

Flame Spread Index = 15  
Smoke Developed Index = 300  
Max Flame Spread = 3.5 ft.

CONCLUSION

The Surface Burning Characteristics as shown below in the Classification Marking represents the judgement of Underwriters Laboratories Inc. based upon the results of the examination and tests presented in this Report.

The product covered by this Report is 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  
REINFORCED PLASTIC  
SURFACE BURNING CHARACTERISTICS

FIRE-X GLASBORD™  
FX-.09"

Flame Spread	15
Smoke Developed	300

Report by:

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