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### Report

**Project number:** 89209301  
**Report number:** 89209301.01br

**Date**  
10/02/2016

**Project number**  
89209301

**Report number**  
89209301.01br

**Phone number client**  
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**Fax number client**  
-

### **Received:**

A textile floor covering, marked as: “118 Arrow Trax”;  
TÜV-reference: MT16-93165.01

### **Sampling procedure:**

The samples are selected by the applicant. The test house has had no influence on the sampling procedure.

The samples have been received on 02/02/2016.

**Article**  
118 Arrow Trax

### **Order:**

Classification of burning behaviour according to EN 13501-1:2007+ A1:2009.

Test methods: Ignitability of products subjected to direct impingement of flame (ISO 11925-2:2010/C1:2011) and determination of the burning behaviour using a radiant heat source (ISO 9239-1:2010)

**Appendix**  
I : Flooring Radiant Panel Single  
Specimen Report – 8 pages

### **Results:**

See page three and four.

### **Appendix:**

See page five up to and including twelve.

TRN applies General Terms & Conditions  
which are filed at the office of the Clerk for  
civil affairs at the Court in Zutphen (the  
Netherlands) under number 35/2010,  
dated November 17th 2010.

## PRODUCT IDENTIFICATION

Applicant : Superior Manufacturing Group-Europe  
B.V.\*  
Name : 118 Arrow Trax\*  
Product number : 118C0072CH\*  
Type of colouring/patterning : Tonal effect  
Type of manufacture : Needle punch\*  
Pile fibre composition : 100% polypropylene\*  
Total thickness (mm) : 9.5\*\*  
Total mass (gr/m<sup>2</sup>) : 3534\*\*  
Density (kg/m<sup>3</sup>) : 372\*\*

\* Applicant's declaration

\*\* Determination by the test house after conditioning to constant mass is achieved.

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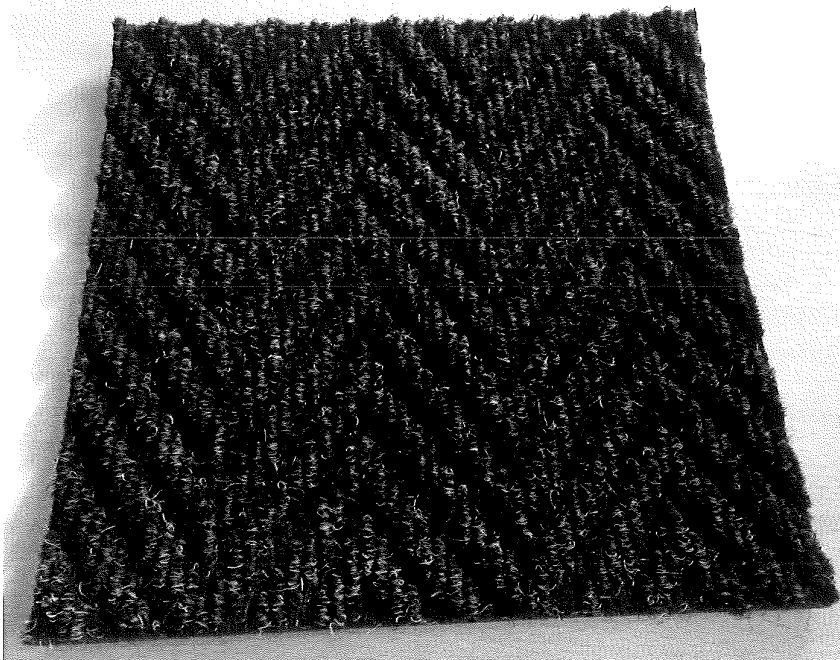


Figure 1. Picture of the received sample

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## TEST RESULTS

### *Ignitability of products subjected to direct impingement of flame*

Method EN ISO 11925-2 :2010/C1:2011

Date of testing : 10/02/2015  
 Conditioning time, climate :  $\geq 7$  days,  $23 \pm 2$  °C and  $50 \pm 5$  %  
 Description of substrate : Fibre cement board,  $8 \pm 2$  mm,  $1800 \pm 200$  kg/m<sup>3</sup>  
 conforming to EN 13238.  
 Flame application : Surface.  
 Flame application time : 15 seconds.

Orientation:	Length			Width		
Total burning time <sup>1</sup>	15	15	24	25	28	15
Flame tip reaches 150 mm (s)	No	No	No	No	No	No
Extent of damaged area, length (mm)	86	78	80	88	96	94
Extent of damaged area, width (mm)	18	20	20	18	20	20
Material melts (yes/no)	Yes	Yes	Yes	Yes	Yes	Yes
Shrinks away <sup>2</sup> (yes/no)	No	No	No	No	No	No
Glowing <sup>3</sup> (sec)	No	No	No	No	No	No
Flaming debris (yes/no)	No	No	No	No	No	No
Ignition of filter paper (yes/no)	No	No	No	No	No	No

1 Inclusive a flame application time of 15 or 30 seconds with surface or edge impingement

2 Shrinks away from flame without being ignited

3 The time at which it occurs and its duration

### *Determination of the burning behaviour using a radiant heat source*

Method EN ISO 9239-1:2010

Date of testing : 10/02/2015  
 Conditioning time, climate :  $\geq 7$  days,  $23 \pm 2$  °C and  $50 \pm 5$  %  
 Description of substrate : Fibre cement board,  $8 \pm 2$  mm,  $1800 \pm 200$  kg/m<sup>3</sup>  
 conforming to EN 13238.  
 Sampling procedure : By contractor.  
 Description of cleaning used : None.  
 Fixing method : None, sample is tested loose laid on the substrate.

Test specimen, orientation	Flame spread (cm)	CRF (kW/m <sup>2</sup> )	Peak light attenuation (%)	Smoke production (%.min)
1, Length	67.0	2.0	98.1	712
2, Width	64.0	2.2	98.0	579
3, Length	67.0	2.0	98.4	661
4, Length	70.0	1.8	97.0	714
<b>Mean, Length</b>	<b>68.0</b>	<b>1.9</b>	<b>97.7</b>	<b>696</b>

Specimen 1, 2, 3 and 4: No flashing, transitory- or sustained flaming are observed.

Specimen 1, 2, 3 and 4: Extinguished manually after the end of the test duration

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## CONCLUSION

According to EN 13501-1:2007+ A1:2009 the tested sample of the aforementioned quality "118 Arrow Trax", in relation to its reaction to fire behaviour is classified: **E<sub>n</sub>**.

The additional classification in relation to smoke production is: -

The aforementioned quality meets the requirement of reaction to fire classification:  
**E<sub>n</sub>**

The classification is valid for the following end use applications:

- End use substrates of classes A1 and A2-s1,d0 , for example fibre cement board.
- Any way of fixation, glued down or loose laid.

### Statements:

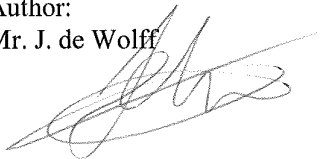
The test results only relate to the behaviour of the test specimens of the examined product under the particular conditions of the test in laboratory conditions; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use. The method might not be suitable if the product is exposed to much larger flames or heat radiant sources.

The validity of this report will expire directly after alterations or modifications of the examined product (combination)(s) and/or the criteria. This report shall not be reproduced, except in full, without the written approval of the testing laboratory.

This document does not represent type approval or certification of the product.

Author:

Mr. J. de Wolff



Review:

Mr. R. Boerboom



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(End of report)

## APPENDIX I: Flooring Radiant Panel Single Specimen Report

Report produced with the Fire Testing Technology FTSOFT software

page 1

### Flooring Radiant Panel Single Specimen Report

Standard : EN ISO 9239-1:2010  
Laboratory : TÜV Rheinland Nederland B.V.  
Sponsor : Superior Manufacturing 89209301  
Date of test : Feb. 10 2016

Specimen description : 118 Arrow Trax MT16--93165 01  
Test name : Prod # 1  
File name : D:\FRP\FILES\16020013.CSV  
Test number in series : 4

Flux calibration file name : C:\FRPSOFT2.9A\CALIBR\FLX16002.CSV

Thickness (mm) : 9,5  
Density (kg/m<sup>3</sup>) : 372

Test duration : 30 minutes (1800 s)  
Substrate used? : Yes  
Substrate : Calcium silicate  
Fixing method : none  
Conditioned? : Yes  
Conditioning temp. (°C) : 23  
Conditioning RH (%) : 50

#### Test Results

Time to ignition : 2 minutes 03 seconds (123 s)  
Time to flameout : 30 minutes (1800 s)  
Extent of burning (mm) : 670  
Critical flux at extinguishment (kW/m<sup>2</sup>) : 2.01  
HF-10 (kW/m<sup>2</sup>) : 3.86  
HF-20 (kW/m<sup>2</sup>) : 2.60  
HF-30 (kW/m<sup>2</sup>) : 2.01  
Flame spread at 10 minutes (mm) : 480  
Flame spread at 20 minutes (mm) : 590  
Flame spread at 30 minutes (mm) : 670  
Peak light attenuation (%) : 98.13  
Time to peak light attenuation : 5 minutes 56 seconds (356 s)  
Total integrated smoke (%.min) : 711.89  
Potential classification : E(0)  
Smoke production classification : s1

These results relate only to the behaviour of the specimens of the product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

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**APPENDIX I: Flooring Radiant Panel Single Specimen Report**

Report produced with the Fire Testing Technology TRPSafe software

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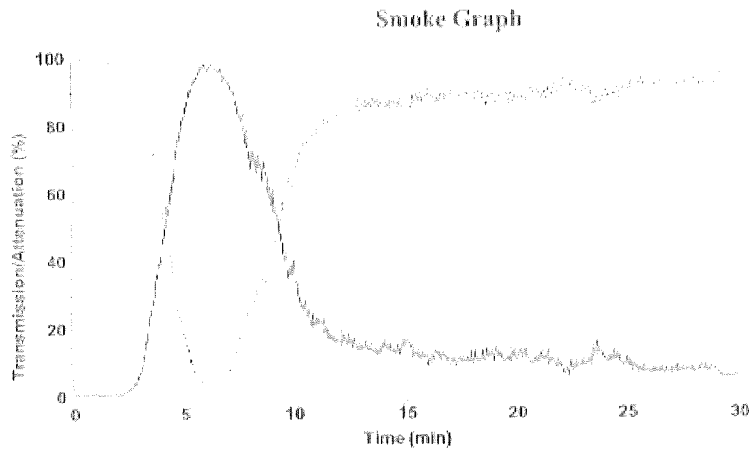
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Test name : Prod # 1  
File name : D:\FRPFILES\16020013.CSV

**Rake Results**

Position (mm)	Time (s)	Flux (kW/m <sup>2</sup> )	Q <sub>sk</sub> (MJ/m <sup>2</sup> )	Position (mm)	Time (s)	Flux (kW/m <sup>2</sup> )	Q <sub>sk</sub> (MJ/m <sup>2</sup> )
60	177	11.5	2.028	510	747	3.4	2.559
110	251	10.5	2.436	560	1048	2.9	2.999
160	272	9.7	2.661	610	1365	2.4	3.302
210	308	8.8	2.719	660	1785	2.1	3.698
260	322	7.8	2.520	710	-	1.8	-
310	362	6.8	2.475	760	-	1.5	-
360	380	5.9	2.238	810	-	1.3	-
410	430	5.0	2.159	860	-	1.2	-
460	518	4.2	2.151	910	-	1.1	-

Comments

Specimen was extinguished manually after end of test.

These results relate only to the behaviour of the specimens of the product under the particular conditions of the test, they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

## APPENDIX I: Flooring Radiant Panel Single Specimen Report

Report produced with the Fire Testing Technology FRPSOFT software

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### Flooring Radiant Panel Single Specimen Report

Standard : EN ISO 9239-1:2010  
 Laboratory : TÜV Rheinland Nederland B.V.  
 Sponsor : Superior Manufacturing 89209301  
 Date of test : Feb, 10 2016

Specimen description : 118 Arrow Trax MT16-91165.01  
 Test name : Cross # 2  
 File name : D:\FRPFILE\89209301\160210\14.CSV  
 Test number in series : 4

Flux calibration file name : C:\FRPSOFT\2.9A\CALIB\FLEX16002.CSV

Thickness (mm) : 9.5  
 Density (kg/m<sup>3</sup>) : 372

Test duration : 30 minutes (1800 s)  
 Substrate used? : Yes  
 Substrate : Calcium silicate  
 Fixing method : none  
 Conditioned? : Yes  
 Conditioning temp. (°C) : 23  
 Conditioning RH (%) : 50

#### Test Results

Time to ignition : 2 minutes 03 seconds (123 s)  
 Time to flameout : 30 minutes (1800 s)  
 Extent of burning (mm) : 640  
 Critical flux at extinguishment (kW/m<sup>2</sup>) : 2.21  
 HF-10 (kW/m<sup>2</sup>) : 3.72  
 HF-20 (kW/m<sup>2</sup>) : 2.68  
 HF-30 (kW/m<sup>2</sup>) : 2.21  
 Flame spread at 10 minutes (mm) : 490  
 Flame spread at 20 minutes (mm) : 580  
 Flame spread at 30 minutes (mm) : 640  
 Peak light attenuation (%) : 97.97  
 Time to peak light attenuation : 5 minutes 37 seconds (337 s)  
 Total integrated smoke (%.min) : 579.32  
 Potential classification : E(II)  
 Smoke production classification : s1

These results relate only to the behaviour of the specimens of the product under the particular conditions of the test, they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

**APPENDIX I: Flooring Radiant Panel Single Specimen Report**

Report produced with the Fire Testing Technology FRT500 software

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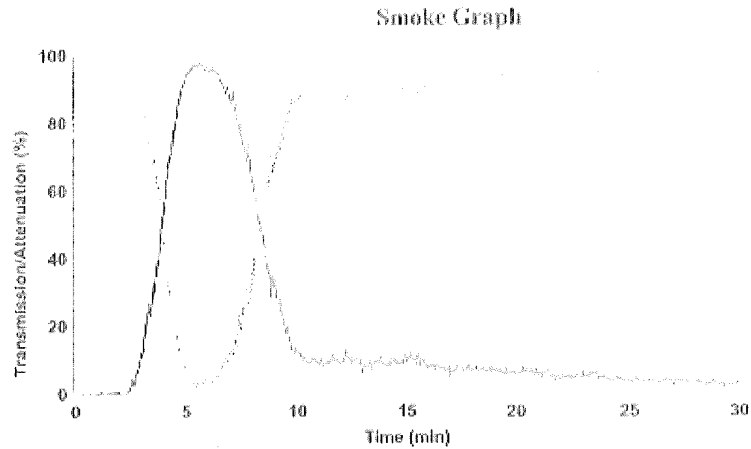
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Test name : Cross # 2  
File name : D:\FRPFILES\16020014.CSV

**Rake Results**

Position (mm)	Time (s)	Flux (kW/m <sup>2</sup> )	Qsh (MJ/m <sup>2</sup> )	Position (mm)	Time (s)	Flux (kW/m <sup>2</sup> )	Qsh (MJ/m <sup>2</sup> )
60	202	11.5	2.314	510	714	3.4	2.446
110	218	10.5	2.299	560	1016	2.8	2.908
160	251	9.7	2.447	610	1474	2.4	3.566
210	278	8.8	2.454	660	-	2.1	-
260	296	7.8	2.310	710	-	1.8	-
310	314	6.8	2.147	760	-	1.5	-
360	339	5.9	1.996	810	-	1.3	-
410	360	5.0	1.808	860	-	1.2	-
460	490	4.2	2.015	910	-	1.1	-

Comments

Specimen was extinguished manually after end of test.

These results relate only to the behaviour of the specimens of the product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

## APPENDIX I: Flooring Radiant Panel Single Specimen Report

Report produced with the Fire Testing Technology FFP500 software

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### Flooring Radiant Panel Single Specimen Report

Standard : EN ISO 9239-1:2010  
 Laboratory : TÜV Rheinland Nederland B.V.  
 Sponsor : SMG 89209301  
 Date of test : Feb. 10 2016

Specimen description : 118 Arrow Trax  
 Test name : Prod # 3  
 File name : D:\FRPFILES\16020017.CSV  
 Test number in series : 4

Flux calibration file name : C:\FRPSOFT\2.9A\CALIB\FLX16002.CSV

Thickness (mm) : 9.5  
 Density (kg/m<sup>3</sup>) : 372

Test duration : 30 minutes (1800 s)  
 Substrate used? : Yes  
 Substrate : Calcium silicate  
 Fixing method : None (loose laid)  
 Conditioned? : Yes  
 Conditioning temp. (°C) : 23  
 Conditioning RH (%) : 50

#### Test Results

Time to ignition : 2 minutes 03 seconds (123 s)  
 Time to flameout : 30 minutes (1800 s)  
 Extent of burning (mm) : 670  
 Critical flux at extinguishment (kW/m<sup>2</sup>) : 2.01  
 HF-10 (kW/m<sup>2</sup>) : 3.72  
 HF-20 (kW/m<sup>2</sup>) : 2.51  
 HF-30 (kW/m<sup>2</sup>) : 2.01  
 Flame spread at 10 minutes (mm) : 490  
 Flame spread at 20 minutes (mm) : 600  
 Flame spread at 30 minutes (mm) : 670  
 Peak light attenuation (%) : 98.39  
 Time to peak light attenuation : 5 minutes 49 seconds (349 s)  
 Total integrated smoke (%.min) : 660.58

Potential classification : B(f)  
 Smoke production classification : s1

*These results relate only to the behaviour of the specimens of the product under the particular conditions of the test; they are not intended to be the sole criteria for assessing the potential fire hazard of the product in use.*

## APPENDIX I: Flooring Radiant Panel Single Specimen Report

Report produced with the Fire Testing Technology FRTS® software

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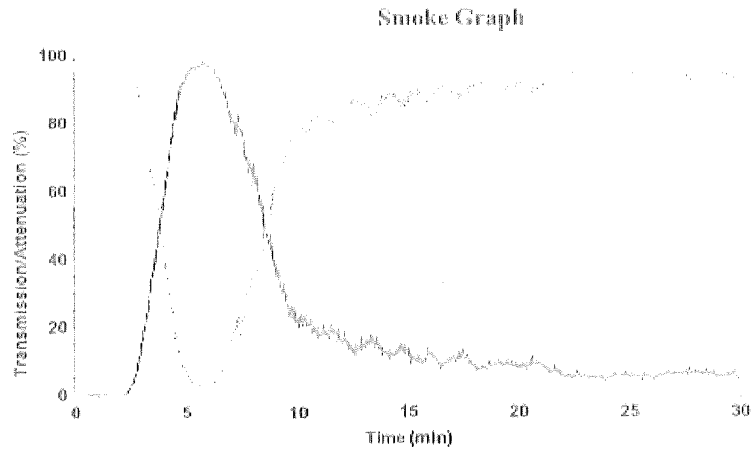
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Test name : Prod # 3  
File name : D:\FRPFILES\16020017.CSV

### Rake Results

Position (mm)	Time (s)	Flux (kW/m <sup>2</sup> )	Qsb (MJ/m <sup>2</sup> )	Position (mm)	Time (s)	Flux (kW/m <sup>2</sup> )	Qsb (MJ/m <sup>2</sup> )
60	177	11.5	2.028	510	655	3.4	2.244
110	216	10.5	2.278	560	938	2.9	2.685
160	253	9.7	2.466	610	1230	2.4	3.024
310	271	8.8	2.393	660	1682	2.1	3.477
260	295	7.8	2.302	710	-	1.8	-
310	313	6.8	2.140	760	-	1.5	-
260	344	5.9	2.026	810	-	1.3	-
410	374	5.0	1.878	860	-	1.2	-
460	461	4.2	1.615	910	-	1.1	-

### Comments

Specimen was extinguished manually after end of test.

These results relate only to the behaviour of the specimens of the product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

## APPENDIX I: Flooring Radiant Panel Single Specimen Report

Report produced with the Fire Testing Technology TRPSv4 software

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### Flooring Radiant Panel Single Specimen Report

Standard : EN ISO 9239-1:2010  
Laboratory : TÜV Rheinland Nederland B.V.  
Sponsor : SMG 89209301  
Date of test : Feb, 10 2016

Specimen description : 118 Arrow Trax M116-93165.01  
Test name : Prod # 4  
File name : D:\FRPTILES\16020018.CSV  
Test number in series : 4

Flux calibration file name : C:\FRPSOFT2.9\VCALIB\FLX16002.CSV

Thickness (mm) : 9.5  
Density (kg/m<sup>3</sup>) : 372

Test duration : 30 minutes (1800 s)  
Substrate used? : Yes  
Substrate : Calcium silicate  
Fixing method : None (loose laid)  
Conditioned? : Yes  
Conditioning temp. (°C) : 23  
Conditioning RH (%) : 50

#### Test Results

Time to ignition : 2 minutes 03 seconds (123 s)  
Time to flameout : 30 minutes (1800 s)  
Extent of burning (mm) : 700  
Critical flux at extinguishment (kW/m<sup>2</sup>) : 1.83  
HF-10 (kW/m<sup>2</sup>) : 3.57  
HF-20 (kW/m<sup>2</sup>) : 2.42  
HF-30 (kW/m<sup>2</sup>) : 1.83  
Flame spread at 10 minutes (mm) : 500  
Flame spread at 20 minutes (mm) : 610  
Flame spread at 30 minutes (mm) : 700  
Peak light attenuation (%) : 97  
Time to peak light attenuation : 6 minutes 03 seconds (363 s)  
Total integrated smoke (%.min) : 714.25

**Potential classification** : E(0)  
**Smoke production classification** : s1

These results relate only to the behaviour of the specimens of the product under the particular conditions of the test; they are not intended to be the sole criteria for assessing the potential fire hazard of the product in use.

## APPENDIX I: Flooring Radiant Panel Single Specimen Report

Report produced with the Fire Testing Technology (FTT) software

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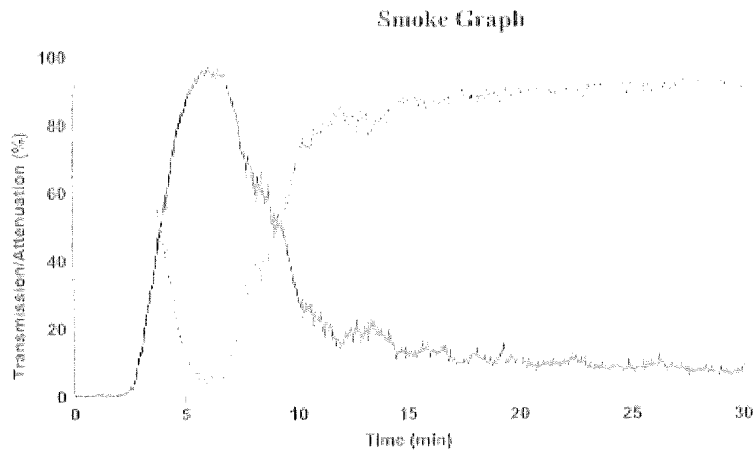
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Test name : Prod # 4  
File name : D:\FRPFILES\16020018.CSV

### Rake Results

Position (mm)	Time (s)	Flux (kW/m <sup>2</sup> )	Qsh (MJ/m <sup>2</sup> )	Position (mm)	Time (s)	Flux (kW/m <sup>2</sup> )	Qsh (MJ/m <sup>2</sup> )
60	181	11.5	2.074	510	618	3.4	2.117
110	223	10.5	2.352	560	862	2.9	2.481
160	264	9.7	2.573	610	1111	2.4	2.688
210	278	8.8	2.454	660	1501	2.1	3.100
260	301	7.8	2.349	710	-	1.8	-
310	333	6.8	2.237	760	-	1.5	-
360	360	5.9	2.120	810	-	1.3	-
410	389	5.0	1.953	860	-	1.2	-
460	481	4.2	1.998	910	-	1.1	-

### Comments

Specimen was extinguished manually after end of test.

These results relate only to the behaviour of the specimens of the product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.