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TEST REPORT

Sponsor :	MACtac EUROPE S.A. Bd Kennedy, Z.I., zone B 7060 SOIGNIES BELGIUM
Reference of order :	Order No.16056 dated on the April 6th, 2011
Test specification :	Test of fire reaction for F classification
Specification document :	Standard NF F 16-101 (October 1988) Standard NF F 16-102 (April 1992) STM-S-001 Index C (October 2006)
Material trademark :	PG 7036
Identification of samples:	Polyester film coated on one side with adhesive, transparent glossy coloured, and about 58 microns thick
Tested side :	Without adhesive
Description of samples :	page 2

CLASSIFICATION : F1

This classification has been specified according to the above mentioned standards from analysis of the gases generated by the combustion and smoke opacity, the results of which are in appendices 1 and 2.

The mentionned results are only applicable to the samples, products or materials submitted to LNE, such as they are defined in this document.

Trappes, the May 17th, 2011

The Head of Fire Behaviour and Fire Safety Department

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Laboratoire national de métrologie et d'essais · LNE

Test officer
Laurence NOE

Responsible for test

Luc NOBLANC

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1. IDENTIFICATION OF SAMPLES

The applicant supplied on the April 7th, 2011 to the LABORATOIRE NATIONAL DE METROLOGIE ET D'ESSAIS samples referenced "PG 7036" and gave the following informations.

Manufacturer :	MACtac EUROPE S.A. Bd Kennedy, Z.I., zone B 7060 SOIGNIES BELGIUM
Composition :	Polyester film, 36 µm thick, coated on one side with an acrylic adhesive
Colour :	Transparent glossy
Tested thickness :	58 µm
Mass :	73 g/m²
End use :	Laminating film used for the protection of photographs or digital printings

Tests have been carried out from the April 28th, 2011 to the May 5th, 2011.

2. DETERMINATION OF F CLASSIFICATION

The materials are classified from F0 to F5 according to the value of smoke index called I.F.

$$I.F. = \frac{Dmax}{100} + \frac{VOF4}{30} + \frac{I.T.C.}{2}$$

Clt.F	I.F.
F0	I.F. ≤ 5
F1	I.F. ≤ 20
F2	I.F. ≤ 40
F3	I.F. ≤ 80
F4	I.F. ≤120
F5	I.F. >120

Dmax : maximum specific optical density determinated with the average of 3 tests whose results are given in appendix 2.

VOF4 : smoke obscuration value during the first 4 minutes determinated with the average of 3 tests whose results are given in appendix 2.

I.T.C. : conventional toxicity index determinated with the concentration of the different gases to the average of 3 tests whose results are given in appendix 1.

Result of the measurements

$$I.F. = \frac{22.17}{100} + \frac{24.13}{30} + \frac{20.83}{2}$$

I.F. = 11 therefore **F1 Class**

APPENDIX 2

SMOKE OPACITY MEASUREMENT

- TESTS PROCEDURE

The tests have been carried out in a smoke chamber according to the specification of the standard NF X 10-702 Part 1 (November 1995) and Parts 2 to 5 (September 1994).

A preliminary test is carried out : one without pilot flames and one with pilot flames. According to the application document STM-S-001 index C (October 2006), the highest partial smoke index ($IF_{partiel}$ = VOF4/30 + Dmax/100) determines the exposure mode for the 2 following tests. In case any of the $IF_{partiel}$ is lower than the $IF_{partiel}$ of the initially not chosen mode, 2 complementary tests are carried out in that mode. Then, the finally chosen mode is the mode leading to the highest mean value for the 3 $IF_{partiels}$.

- RESULTS

For the test without pilot flames,
VOF4 = 24.2 , Dmax = 21.2 and $IF_{partiel}$ = 1.02
For the test with pilot flames,
VOF4 = 20.2 , Dmax = 18.4 and $IF_{partiel}$ = 0.85

Consequently, the tests have been carried out without pilot flames.
The results and curves obtained for each test are given in appendix 3.

	Test n°1	Test n°2	Test n°3	Mean Value
VOF4	24.2	27.3	20.9	**24.13**
Dmax	21.2	25.2	20.1	**22.17**

- OBSERVATIONS DURING THE TESTS

The material smokes at about 20 s.
At the end of the test, the material is molten and browned.

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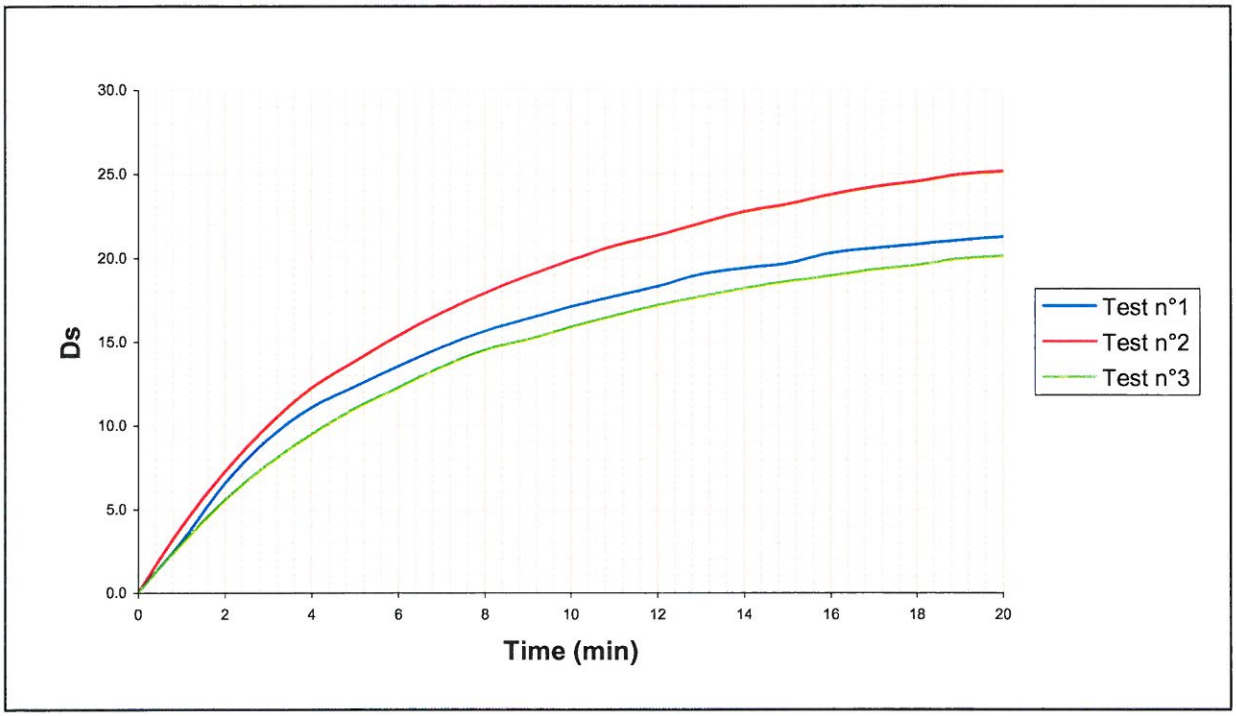
APPENDIX 3

CURVES OF TESTS WITHOUT PILOT FLAMES

PG 7036
Thickness : 58 µm



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DEFINITIONS OF PARAMETERS GIVEN IN PAGE 7

Dmax : maximum specific optical density reached during the test.

T (Dmax) : time in minutes to reach Dmax.

$$VOF4 = D1 + D2 + D3 + \frac{D4}{2}$$

Dc : specific optical density at the end of the test after smoke has been exhausted .

Mass (g) : mass of the sample tested, in grams.

Thickness (mm) : average thickness of the sample in millimeters.

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RESULTS OF THE TESTS WITHOUT PILOT FLAMES

PG 7036
Thickness : 58 µm

	Specifique Optical Density		
Time in minutes	Test n°1	Test n°2	Test n°3
0	0.0	0.0	0.0
1	3.0	3.9	2.9
2	6.5	7.2	5.6
3	9.2	10.0	7.7
4	11.0	12.2	9.5
5	12.3	13.8	11.0
6	13.5	15.3	12.3
7	14.6	16.7	13.5
8	15.6	17.9	14.5
9	16.4	18.9	15.1
10	17.1	19.8	15.9
11	17.7	20.7	16.5
12	18.3	21.3	17.2
13	19.0	22.0	17.7
14	19.4	22.7	18.2
15	19.6	23.2	18.6
16	20.3	23.7	18.9
17	20.6	24.2	19.3
18	20.8	24.5	19.6
19	21.0	25.0	19.9
20	21.2	25.1	20.1

Dmax	21.2	25.2	20.1
T(Dmax) (min)	19 min 47 s	19 min 49 s	20 min
VOF4	24.2	27.3	20.9
Dc	0.0	1.9	0.2
Mass (g)	0.4785	0.4745	0.4750
Thickness (mm)	0.06	0.06	0.06