

# TEST CERTIFICATE

**No. 23002031**

English version

Testing according to DIN 4102-1 (Mai 1998)

## Sponsor

Avery Dennison Graphics Division  
P.O. Box 118

NL-2394 ZG Hazerswoude

**Date of application:** 07.05.2001 and 19.10.2007

**Date of sampling:** Samples were sent in by the sponsor

**Samples delivered on:** 08.05.2001, 15.05.2001 and 26.03.2002 and 10.10.2007

**Date of testing:** 22.01.02, 23.01.02, 24.01.02, 28.01.02,  
30.04.02, 06.05.02 and 27.05.02 and 24.10.2007

## Order

Testing according to DIN 4102-1 (May 1998) class B1

## Description / Name of tested product

Advertising foils "Avery MPI..."

## Applied test procedure

DIN 4102-1 (May 1998)

This test certificate replaces the test certificate with the same number issued 26 July 2002 which now is no longer valid.

This test certificate is a translation of the original test certificate 23002031 issued 20 November 2007 in German language and is only allowed to be used together with the original test certificate. In case of doubt the German version is valid solely.

This test certificate is valid until 25.07.2012.

The test results only relate to the above named product.

Any change in form or content to a test certificate can only be made by the approval of MPA NRW.

This test certificate consists of 10 pages and 1 attachment.

**Testing material**

**Named by sponsor:** „Avery MPI...“

**Description:**

White, self-adhesive PVC-foil in different thicknesses and coated with different glues; the foils differ as follows:

„Avery MPI 1005“: thickness 53  $\mu\text{m}$ , glossy surface, the foil is non-detachable after adhesion

„Avery MPI 2002“: thickness 80  $\mu\text{m}$ , glossy surface, the foil is detachable after adhesion

„Avery MPI 2003“: thickness 80  $\mu\text{m}$ , glossy surface, the foil is non-detachable after adhesion

„Avery MPI 3000“: thickness 100  $\mu\text{m}$ , glossy surface, the foil is non-detachable after adhesion

„Avery MPI 3001“: thickness 100  $\mu\text{m}$ , glossy surface, the foil is detachable after adhesion

„Avery MPI 3021“: thickness 100  $\mu\text{m}$ , mat surface, the foil is detachable after adhesion

(Information given by the sponsor)

For the testing the following foils were chosen by the MPA NRW:

a) „Avery MPI 1005“, b) „Avery MPI 2002“, c) „Avery MPI 3000“ and d) „Avery MPI 3001“

Table 1: Measurements of the tested material:

		Arithmetic mean
Thickness:	mm	
a) MPI 1005		0.08
b) MPI 2002		0.08
c) MPI 3000		0.1
d) MPI 3001		0.1
e) MPI 2002 <sup>1)</sup>		0.11
Weight per unit area:	g/m <sup>2</sup>	
a) MPI 1005		119
b) MPI 2002		136
c) MPI 3000		155
d) MPI 3001		153
e) MPI 2002 <sup>1)</sup>		147
Density:		--

**Remark:** <sup>1)</sup> Samples of this material were sent in for testing on 10 October 2007. This performed indicative test is the basis for the extension of the period of validity of the test certificate issued on 26 July 2002.

Results of the Brandschichttest (part 1)					
No.	Tested type of foil	Measurements Test specimen			
		MPI 1005 A1	MPI 1005 B1	MPI 3000 C1	MPI 3000 D1
1	<u>No. of test specimen arrangement according to DIN 4102 part 15, table 1</u>	7	--	7	--
2	<u>Max. flame height above bottom edge</u>	80	70	70	80
	cm Time <sup>1)</sup> min : s	1:10	1:30	1:00	0:50
4	<u>Melt through / burn through</u> Time <sup>1)</sup> min : s	--	--	--	--
5	<u>Observations on the backside of the specimens</u> Flames/smouldering Time <sup>1)</sup> min : s	--	--	--	--
6	Discolouration Time <sup>1)</sup> min : s	--	10:00	--	10:00
7	<u>Burning droplets</u> Start <sup>1)</sup> min : s	--	--	--	--
8	<u>Extent</u> sporadic burning droplets	--	--	--	--
9	continually falling particles	--	--	--	--
10	<u>Falling particles which burns</u> Start <sup>1)</sup> min : s	2:00	2:30	2:05	--
11	sporadic falling parts	x	x	x	--
12	continually falling particles	--	--	--	--
13	Duration of the burning on the screen bottom (max.) min : s	0:08	0:07	0:18	--
14	<u>Interference of the burner flame by dripping/falling particles</u> Time <sup>1)</sup> min : s	--	--	--	--
15	<u>Early termination of the test</u> End of burning at the specimen <sup>1)</sup> min : s	--	--	--	--
16	Time of early cancellation of the test <sup>1)</sup> min : s	--	--	--	--

<sup>1)</sup> Time counting from the start of the test

No.		Results of the Brandschachttest (part 2)							
		Measurements Test specimen							
		A1		B1		C1		D1	
<u>Continuous burning after termination of the test</u>									
17	Duration min : s	--	--	--	--	--	--	--	--
18	Number of specimens	--	--	--	--	--	--	--	--
19	Front side of the specimen	--	--	--	--	--	--	--	--
20	Back side of the specimen	--	--	--	--	--	--	--	--
21	Flame length cm	--	--	--	--	--	--	--	--
<u>Smouldering after termination of the test</u>									
22	Duration min : s	0:30	--	0:58	--	--	--	--	--
23	Number of specimens	4	--	4	--	--	--	--	--
<u>Location</u>									
24	Lower half of the specimen	x	--	x	--	--	--	--	--
25	Upper half of the specimen	--	--	--	--	--	--	--	--
26	Front side of the specimen	x	--	x	--	--	--	--	--
27	Back side of the specimen	--	--	--	--	--	--	--	--
<u>Smoke density</u>									
28	≤ 400 % x min	x	x	x	x	--	--	--	--
29	≥ 400 % x min	--	--	--	--	--	--	--	--
30	Diagram in appendix no.	--	--	--	--	--	--	--	--
<u>Residual length</u>		40	41	40	42	41	41	43	44
31	Single values cm	41	40	46	46	41	42	45	46
32	Average values cm	40	44	41	44	--	--	--	--
33	Photo of the specimen on page	--	--	--	--	--	--	--	--
<u>Smoke temperature</u>									
34	Maximum value of the average values °C	122	118	119	121	--	--	--	--
35	Time <sup>1)</sup> min : s	2:00	2:00	1:00	10:00	--	--	--	--
36	Diagram in appendix no.	--	--	--	--	--	--	--	--
37	<u>Remarks:</u> Tests A1 and C1: The foils were glued on non-combustible gypsum plasterboards with a thickness of 12.5 mm. Tests B1 and D1: The foils were glued on steel sheets with a thickness of 0.88 mm.								

Results of the Brandschachttest (part 1)					
No.	Tested type of foil	Measurements Test specimen			
		MPI 3001 A2	MPI 3001 B2	C	D
1	<u>No. of test specimen arrangement according to DIN 4102 part 15, table 1</u>	7	--		
2	<u>Max. flame height above bottom edge</u>	80	80		
	cm Time <sup>1)</sup> min : s	1:30	1:00		
4	<u>Melt through / burn through</u> Time <sup>1)</sup> min : s	--	--		
5	<u>Observations on the backside of the specimens</u> Flames/smouldering	--	--		
	Time <sup>1)</sup> min : s				
6	Discolouration	--	10:00		
	Time <sup>1)</sup> min : s				
7	<u>Burning droplets</u> Start <sup>1)</sup> min : s	--	--		
	<u>Extent</u>				
8	sporadic burning droplets	--	--		
9	continually falling particles	--	--		
10	<u>Falling particles which burns</u> Start <sup>1)</sup> min : s	2:27	2:00		
	sporadic falling parts	x	x		
12	continually falling particles	--	--		
13	Duration of the burning on the screen bottom (max.) min : s	0:12	0:08		
14	<u>Interference of the burner flame by dripping /falling particles</u>				
	Time <sup>1)</sup> min : s	--	--		
15	<u>Early termination of the test</u> End of burning at the specimen <sup>1)</sup> min : s	--	--		
	Time of early cancellation of the test <sup>1)</sup> min : s	--	--		
16		--	--		

<sup>1)</sup> Time counting from the start of the test

No.		Results of the Brandschachttest (part 2)			
		Measurements Test specimen			
		A2	B2	C	D
<u>Continuous burning after termination of the test</u>					
17	Duration min : s	--	--		
18	Number of specimens	--	--		
19	Front side of the specimen	--	--		
20	Back side of the specimen	--	--		
21	Flame length cm	--	--		
<u>Smouldering after termination of the test</u>					
22	Duration min : s	0:25	--		
23	Number of specimens	4	--		
<u>Location</u>					
24	Lower half of the specimens	x	--		
25	Upper half of the specimens	--	--		
26	Front side of the specimen	x	--		
27	Back side of the specimen	--	--		
<u>Smoke density</u>					
28	≤ 400 % x min	x	x		
29	≥ 400 % x min	--	--		
30	Diagram in appendix no.	--	--		
<u>Residual length</u> <sup>2)</sup>		47	46	42	38
31	Single values cm	45	43	40	40
32	Average values cm	45	40		
33	Photo of the specimen on page	--	--		
<u>Smoke temperature</u>					
34	Maximum value of the averaged values °C	120	131		
35	Time <sup>1)</sup> min : s	2:00	1:00		
36	Diagram in appendix no.	--	--		
37	<u>Remarks:</u> Test A2: The foils were glued on non-combustible gypsum plasterboards with a thickness of 12.5 mm. Test B2: The foils were glued on steel sheets with a thickness of 0.88 mm.				

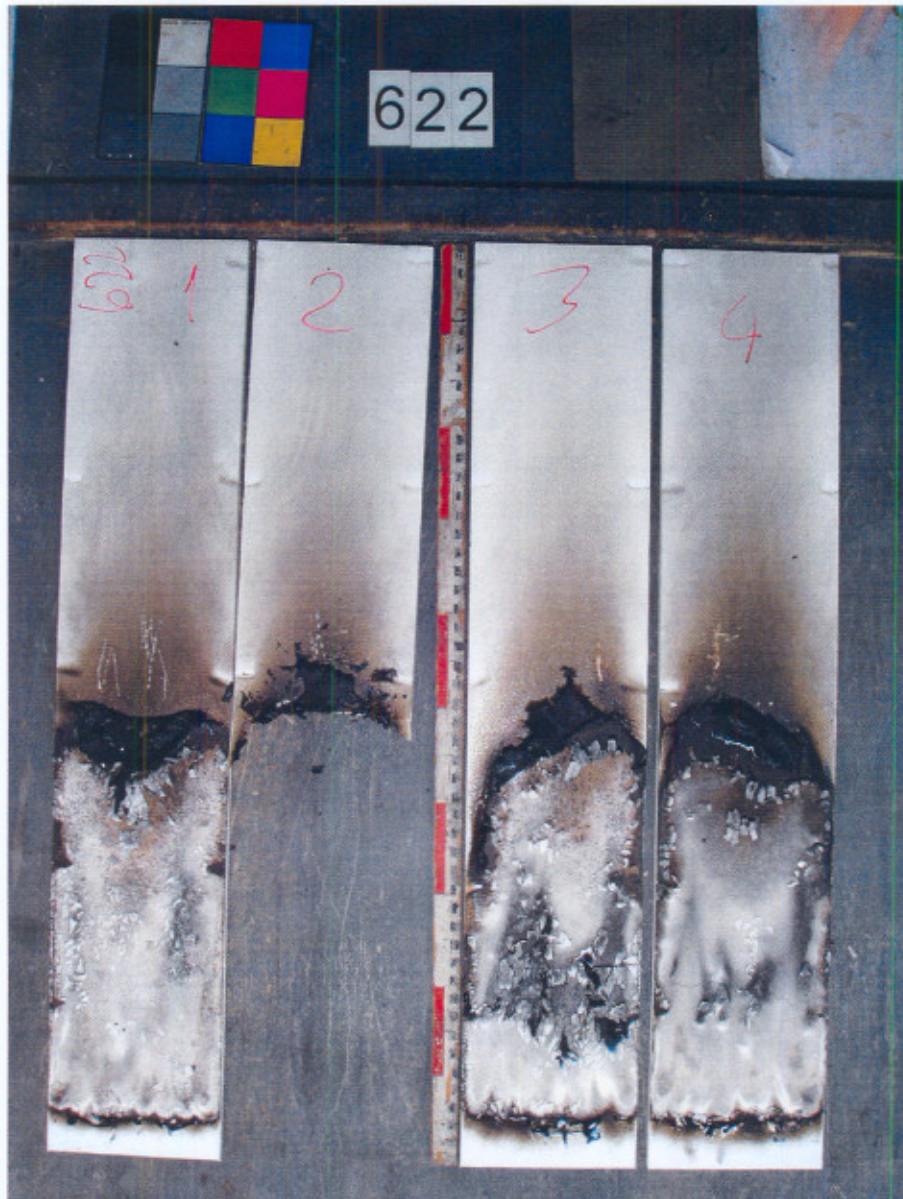
Results of the Brandschachttest (part 1)					
No.	Tested type of foil	Measurements Test specimen			
		MPI 2002 A3	MPI 2002 B3	MPI 2002 C3	MPI 2002 A4
1	<u>No. of test specimen arrangement according to DIN 4102 part 15, table 1</u>	7	7	--	7
2	<u>Max. flame height above bottom edge</u>	80	80	70	80
	cm Time <sup>1)</sup> min : s	0:50	1:30	1:00	1:00
4	<u>Melt through / burn through</u> Time <sup>1)</sup> min : s	--	--	--	--
5	<u>Observations on the backside of the specimens</u> Flames/smouldering Time <sup>1)</sup> min : s	--	--	--	--
	6	Discolouration Time <sup>1)</sup> min : s	--	--	10:00
7	<u>Burning droplets</u> Start <sup>1)</sup> min : s	--	--	--	--
	8	<u>Extent</u> sporadic burning droplets	--	--	--
9	continually falling particles	--	--	--	--
10	<u>Falling particles which burns</u> Start <sup>1)</sup> min : s	0:35	1:17	--	0:42
	11	sporadic falling parts	x	x	--
12	continually falling particles	--	--	--	--
13	Duration of the burning on the screen bottom (max.) min : s	0:15	0:08	--	0:10
14	<u>Interference of the burner flame by dripping /falling particles</u> Time <sup>1)</sup> min : s	--	--	--	--
15	<u>Early termination of the test</u> End of burning at the specimen <sup>1)</sup> min : s	--	--	--	--
	16	Time of early cancellation of the test <sup>1)</sup> min : s	--	--	--

<sup>1)</sup> Time counting from the start of the test

No.		Results of the Brandschachttest (part 2)							
		Measurements Test specimen							
		A3		B3		C3		A4	
<u>Continuous burning after termination of the test</u>									
17	Duration min : s	--	--	--	--	--	--	--	--
18	Number of specimens	--	--	--	--	--	--	--	--
19	Front side of the specimen	--	--	--	--	--	--	--	--
20	Back side of the specimen	--	--	--	--	--	--	--	--
21	Flame length cm	--	--	--	--	--	--	--	--
<u>Smouldering after termination of the test</u>									
22	Duration min : s	0:45	1:10	--	--	--	--	0:20	--
23	Number of specimens	4	4	--	--	--	--	4	--
<u>Location</u>									
24	Lower half of the specimens	x	x	--	--	--	--	x	--
25	Upper half of the specimens	--	--	--	--	--	--	--	--
26	Front side of the specimen	x	x	--	--	--	--	x	--
27	Back side of the specimen	--	--	--	--	--	--	--	--
<u>Smoke density</u>									
28	≤ 400 % x min	x	x	--	--	--	--	x	41
29	≥ 400 % x min	--	--	--	--	--	--	--	--
30	Diagram in appendix no.	1	--	--	--	--	--	1	--
<u>Residual length<sup>2)</sup></u>									
31	Single values cm	35	35	41	42	44	45	45	42
		36	37	40	40	45	45	45	41
32	Average values cm	36	37	41	42	45	45	45	43
33	Photo of the specimen on page	--	--	--	--	--	--	--	9
<u>Smoke temperature</u>									
34	Maximum value of the averaged values °C	148	140	122	122	122	122	126	126
35	Time <sup>1)</sup> min : s	1:00	2:00	2:00	2:00	2:00	2:00	1:16	1:16
36	Diagram in appendix no.	1	--	--	--	--	--	1	--
37	<u>Remarks:</u> Tests A3 and B3: The foils were glued on non-combustible gypsum plasterboards with a thickness of 12.5 mm. Test C3: The foils were glued on steel sheets with a thickness of 0.88 mm. Test A4: Samples were sent in for the test on 10 October 2007. The foil was glued on non-combustible gypsum plasterboards with a thickness of 12.5 mm.								



Appearance of the specimen



Picture 1: Specimen A4 after the test

### Test result

The material described on page 2 has fulfilled the requirements for building products according to Baustoffklasse B2 (further details are kept in the files of the MPA NRW). According to the results, the product has also fulfilled the requirements of the Baustoffklasse B1. Therefore the material can be classified as

**Baustoffklasse B1 (schwerentflammbare Baustoffe) according to DIN 4102-1 (Mai 1998)**

The material is **not producing burning droplets / particles.**

This assessment is only valid if the foils will be glued on

- solid mineral substrate

or

- metallic substrate

or

- gypsum plasterboards

This assessment is also valid, if the surface of the material is printed. The material is not allowed to be exposed to the weather.

### Special remark

The test certificate is valid until 25 July 2012. The period of validity can be extended on request.

As the above-mentioned material should be used as an advertising medium and consequently is no building product according to § 2 Abs. 9 number 1 MBO an allgemeines bauaufsichtliches Prüfzeugnis or an allgemeine bauaufsichtliche Zulassung of the Deutsches Institut für Bautechnik, Berlin, is not required.

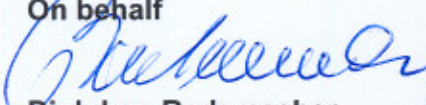
This test certificate is not valid if the tested material is used as a building product as stated in the Landesbauordnung.

### Marking

The above mentioned material has to be marked with: **DIN 4102-B1**. Restrictions concerning the usage (see section "Test result") also have to be listed in the marking.

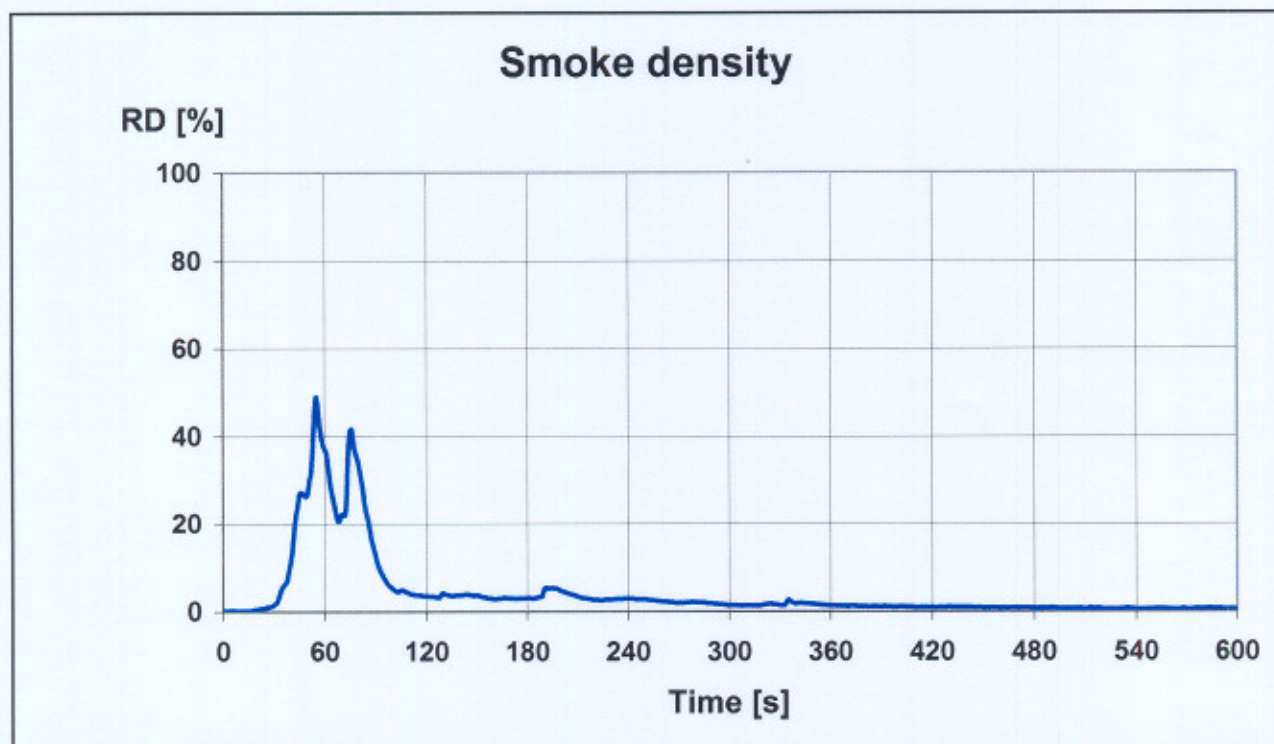
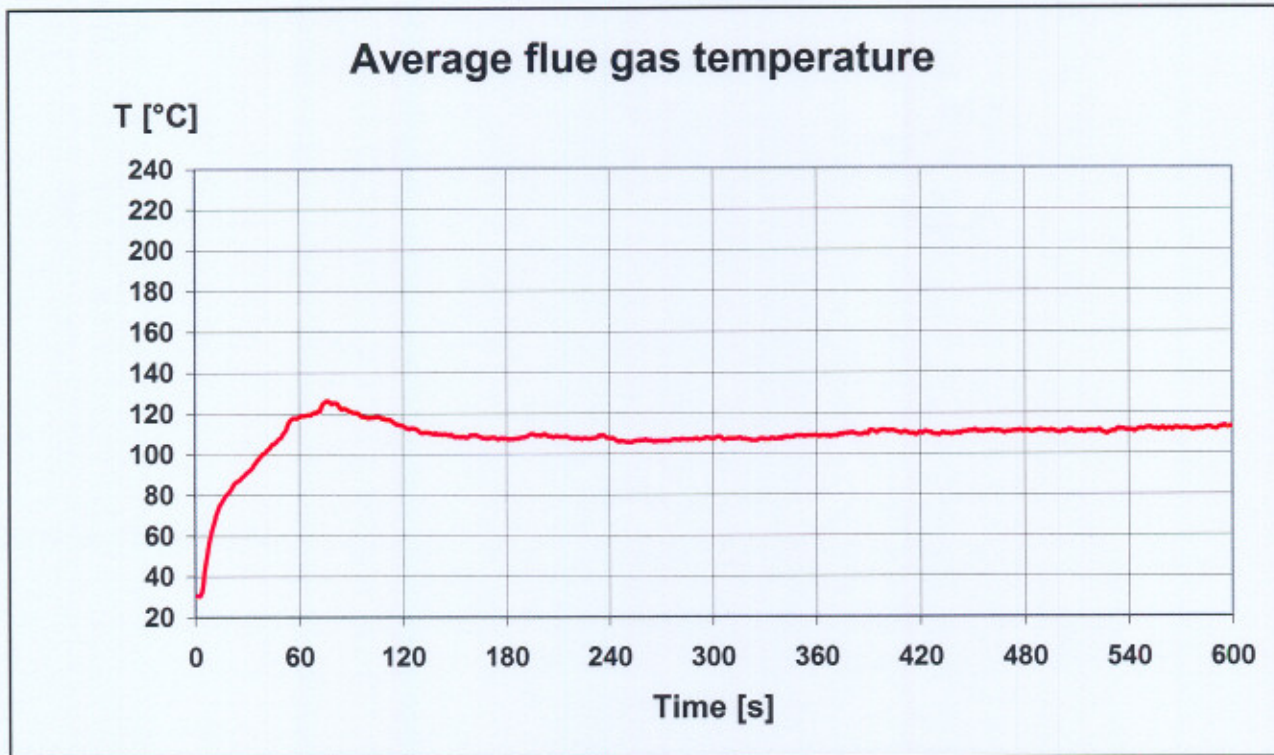
Erwitte, 20 November 2007

On behalf

  
**Dipl.-Ing. Rademacher**  
(The head of the testing body)



Date of issuing this English version: 12 December 2007



Temporal progress of the average flue gas temperature and the smoke density of specimen A4 in the Brandschachttest