



CERTIFICATE

Material Fire Test Certificate

IGNL-4044-07-02C I01R00
Date of Test 1/06/2020
ISSUED 8/07/2020
EXPIRY 7/07/2025

Specimen Identification
3M Overlaminat 8048/8050

Specimen Description

The sponsor described the tested specimen as:

The product is a self-adhesive laminating film with the nominal composition being polymer blend. The nominal mass per unit area is 80 gsm and the nominal thickness is 0.05 mm. The colour of specimen is clear and the end use is signage and graphics.

Test Method

Three (3) specimens were tested in accordance with the requirements of AS/NZS 3837. In accordance with clause 3.2(aa) of AS/NZS 3837:1998, the results from this test shall not be used to derive a Group Number in accordance with the NCC requirements without undertaking validation of the performance that is predicted, when tests are undertaken on materials or assemblies that have been identified in clause 3.4(B) as not having validated correlations. Clause 5.3.2 of AS 5637.1-2015 precludes the usage of empirical correlations, to determine the group numbers based on AS/NZS 3837 test results, for materials that melt or shrink away from a flame. As such, the group number presented here shall only be considered for indication purposes.

Observations

The specimens exhibited considerable dimensional changes (shrinkage) and as such, the material is not suitable for this type of testing in accordance with clause 2.2.1.5. At the beginning of the test, bubbling on specimen surface and visible smoke were observed followed by sparks, which then developed into sustained flames. The specimens fully burnt off at the end of the tests. The flames extinguished in less than 60s, and the test was completed without removing the spark because of recurring flames in accordance with clause 2.5.2(d).

AS/NZS 3837:1998 Method of test for heat and smoke release rates for materials and products using an oxygen consumption calorimeter

Sponsor
3M Australia
Building A, 1 Rivett Rd
North Ryde NSW 2113
www.3m.com.au

Test Laboratory
Ignis Labs Pty Ltd
ABN 36 620 256 617
3 Cooper Place
Queanbeyan NSW 2620
www.ignislabs.com.au
(02) 6111 2909

Input

Test Heat Flux (kW/m ²)	50.0	Sp 1	Sp 2	Sp 3	Sp 4	Sp 5	Sp 6	Mean
Thickness (mm)	A _s	6.09	6.09	6.02	-	-	-	6.06667
Surface Area (m ²)	A _s	0.00884	0.00884	0.00884	-	-	-	0.00884
Mass before the Test (g)	m _i	85.8917	85.1155	84.93	-	-	-	85.3123
Mass after the Test (g)	m _f	79.5391	78.2902	76.661	-	-	-	78.1635
Time to Ignition (sec)	t _{ig}	81	75	71	-	-	-	75.6667
Test start time (sec)	t _{start}	0	0	0	-	-	-	0

Calculation

Density (kg/m ³)	ρ	1595.44	1581.03	1595.9	-	-	-	1590.8
Irradiance (kW/m ²)		50.04	50.04	50.04	-	-	-	50.04
Exhaust System Flow Rate (m ³ /sec)		0.024	0.024	0.024	-	-	-	0.024
Mass Loss (kg/m ²)		0.71862	0.77209	0.9354	-	-	-	0.80869
Average rate of Mass Loss per unit area (g/m ² .s)		4.27749	4.51517	5.5346	-	-	-	4.77577
Total Mass Pyrolyzed (%)		7.39605	8.01889	9.7357	-	-	-	8.38356
Time to 50kW/m ² (sec)	t ₅₀	81.9263	74.6485	67.352	-	-	-	74.6423
Ignitability Index (1/min)	I _{ig}	0.73237	0.80377	0.8908	-	-	-	0.80899
Test duration (sec)		249	246	240	-	-	-	245

Peak Rate of Heat Release (0-60s)		66.3761	70.483	66.634	-	-	-	67.831
Peak Rate of Heat Release (0-180s)		66.3761	70.483	66.634	-	-	-	67.831
Peak Rate of Heat Release (0-300s)		66.3761	70.483	66.634	-	-	-	67.831
Average Rate of Heat Release (0-60s)		43.4351	45.0498	44.184	-	-	-	44.2229
Average Rate of Heat Release (0-180s)		20.6576	20.5984	20.944	-	-	-	20.7334
Average Rate of Heat Release (0-300s)		20.6576	20.5984	20.944	-	-	-	20.7334
Total Heat Released (MJ/m ²)		3.65636	3.80917	3.755	-	-	-	3.74019
Average Effective Heat of Combustion (MJ/kg)	Δh _{c,eff(avg)}	5.10558	4.81985	3.984	-	-	-	4.63646
Average Specific Extinguishment Area (m ² /kg)	σ _(avg)	192.344	146.248	121.46	-	-	-	153.35

Rate of Heat Release Index (m=0.34)	I _{Q1}	1146.85	1322.75	1098	-	-	-	1189.19
Rate of Heat Release Index (m=0.93)	I _{Q2}	240.728	466.332	183.03	-	-	-	296.696
Integral Limit at 10 min	I _{Q, 10 min}	6800 - 540 I _g	6404.52	6365.97	6318.9	-	-	6363.14
Integral Limit at 2 min	I _{Q, 2 min}	2475 - 165 I _g	2354.16	2342.38	2328	-	-	2341.52
Integral Limit at 12 min	I _{Q, 12 min}	1650 - 165 I _g	1529.16	1517.38	1503	-	-	1516.52

Result

BCA Group Classification Prediction	1	1	1	-	-	-
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D. Laker
Test Supervisor
Darren Laker

Ram Prakash
Technical Lead
Ram Prakash

Disclaimer

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

The results of these fire tests may be used to directly assess fire hazard, but it should be recognized that a single test method will not provide a full assessment of fire hazard under all fire conditions.

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