

Tested For: Rebecca Johnson
 3M Company
 3M Center Bldg 230-BE-16
 Maplewood, MN 55144
 USA

Phone: (651) 282-4485
Fax:
Mobile:
PO#: 3501090188
Email:

Received: 1/26/2021
Completed: 2/23/2021
Code: A1
Test Report: 3-42295-1

Key Test: ASTM E162

898

Client's Identification:

Lot No.: LA-D100-2874-7. Style: DP8610NS. Composition: 2K Acrylic Adhesive. Product End Use: Rail Applications for Structural Adhesive. Adhesive sandwiched between 2 pieces of IRC cement board. Adhesive thickness 0.01".

Category: Radiant Panel Specifier: Transit Guidelines & Regs. LE 2015a; V 9/15 PC: 24H+ME /jd SM/mg

TEST PERFORMED: ASTM E162 - Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source

APPROXIMATE THICKNESS OF MATERIAL (as measured by SGS North America): 0.580"

PRODUCT CATEGORY: Various

SPECIMEN PREPARATION:

- No backing required, as specimens exceeded 0.75" in thickness.
- The specimens were backed by a 0.5" Etera board (a cement asbestos substitute).
- The back and sides of each specimen were wrapped with 0.002" thick aluminum foil.
- The face of each specimen was covered with 1.0" hexagonal wire mesh screen.

BRIEF DESCRIPTION OF TEST: The test specimen faces a radiant heat source. At the beginning of the test period an igniting flame impinges at the top of the specimen. Visual observation is made of the downward progression of the flame front. The heat given off by the burning specimen is automatically recorded. The combination of the two factors, flame front progression and heat, results in a Flame Spread Index.

The results contained in this report relate only to the item(s) tested. The test report shall not be reproduced except in full, without written approval from SGS North America.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/terms-e-document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for a maximum of 45 days only.

Tested For: Rebecca Johnson
 3M Company
 3M Center Bldg 230-BE-16
 Maplewood, MN 55144
 USA

Phone: (651) 282-4485
Fax:
Mobile:
PO#: 3501090188
Email:

Received: 1/26/2021
Completed: 2/23/2021
Code: A1
Test Report: 3-42295-1

Key Test: ASTM E162

898

RESULTS:

Specimen	Flame Progression (mm:ss)					Net Stack Rise°C	Q	FS	Flame Spread Index	Rapid Flaming Dripping or Flaming Running (yes/no)	
	3.0"	6.0"	9.0"	12.0"	15.0"						
1	FN	FN	FN	FN	FN	2.0	0.4	1.0	0.4	No	
2	FN	FN	FN	FN	FN	4.0	0.9	1.0	0.9	No	
3	FN	FN	FN	FN	FN	0.7	0.7	1.0	0.7	No	
4	FN	FN	FN	FN	FN	15.0	3.4	1.0	3.4	No	
									Avg:	1.4	

(Nearest multiple of five per paragraph 13.1.7):

Rounded: 0

TEST OBSERVATIONS: No unusual observations.

ABBREVIATIONS USED:

- F = Flashed beyond benchmark.
- FN = Flame front did not reach this benchmark.
- SB = Still burning.
- DNO = Did not occur.

CALCULATION FACTORS: Etera board correction factor: 17°C; Beta: 25.41

FLUX: 2.3 – 1.5 – 0.8 (Flux Transducer # 184112)

The results contained in this report relate only to the item(s) tested. The test report shall not be reproduced except in full, without written approval from SGS North America.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/terms-e-document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for a maximum of 45 days only.

Tested For: Rebecca Johnson
 3M Company
 3M Center Bldg 230-BE-16
 Maplewood, MN 55144
 USA

Phone: (651) 282-4485
Fax:
Mobile:
PO#: 3501090188
Email:

Received: 1/26/2021
Completed: 2/23/2021
Code: A1
Test Report: 3-42295-1

Key Test: ASTM E162

898

REMARKS:

- None.
- Flame spread index is invalid
- Molten material flowed from specimen holder
- One of more portions of a test specimens exhibits explosive spalling
- "Flaming Dripping" qualified as approximately _____ drips per 10 second period for at least a portion of the test
- Greater than 20% by mass of the product fell to the floor during testing
- The Flame Spread Index is invalid in the context of ASTM E 162, Paragraph 11.1

<u>Specimen #</u>	<u>Non-Sustained Flame Front Off Gas Ignition (yes/no)</u>	<u>Sustained Flame Front Ignition at (mm:ss)</u>	<u>All Flaming Out (mm:ss)</u>	<u>Test End (mm:ss)</u>	<u>Time of drip (mm:ss)</u>
1	No	DNI	DNI	15:00	DNO
2	No	DNI	DNI	15:00	DNO
3	No	DNI	DNI	15:00	DNO
4	No	DNI	DNI	15:00	DNO

ACCEPTANCE CRITERIA: The requirement (pass/fail criteria) is based on the product description as listed in the three primary documents (listed below) which set forth the fire test procedures for flammability and smoke emissions.

1. Federal Railroad Administration Test Procedures & Performance Criteria, Federal Register Notice [LE 2002; V 1/17]
2. UMTA Recommended Fire Safety Practices for Transit Bus & Van Materials Selection Docket #90-A [LE 1993; V 1/17]
3. NFPA 130 Section 8.4 Flammability & Smoke Emission; Table 8.4.1 [LE 2017; V 1/17]

The results contained in this report relate only to the item(s) tested. The test report shall not be reproduced except in full, without written approval from SGS North America.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/terms-e-document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for a maximum of 45 days only.

Tested For: Rebecca Johnson
3M Company
3M Center Bldg 230-BE-16
Maplewood, MN 55144
USA

Phone: (651) 282-4485
Fax:
Mobile:
PO#: 3501090188
Email:

Received: 1/26/2021
Completed: 2/23/2021
Code: A1
Test Report: 3-42295-1

Key Test: ASTM E162

898

CONCLUSION: The reader is referred to the attached summaries of these documents to determine if the results of the product tested herein fall within the maximum permitted for that product.

CERTIFICATION: I certify that the above results were obtained after testing specimens in accordance with the procedures and equipment specified above.

AUTHORIZED SIGNATURE
SGS NORTH AMERICA
/jab

Rebecca Johnson

MAR 19 2021

The results contained in this report relate only to the item(s) tested. The test report shall not be reproduced except in full, without written approval from SGS North America.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/terms-e-document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for a maximum of 45 days only.

Tested For: Rebecca Johnson
 3M Company
 3M Center Bldg 230-BE-16
 Maplewood, MN 55144
 USA

Phone: (651) 282-4485
Fax:
Mobile:
PO#: 3501090188
Email:

Received: 1/26/2021
Completed: 2/23/2021
Code: A1
Test Report: 3-42295-1

Key Test: ASTM E162

ASTM D3675; ASTM E162; ASTM E662 REQUIREMENTS SPECIFIED BY FEDERAL GUIDELINES 49 CFR PART 238

Category	Function of Material	ASTM E662 Max Specific Density		ASTM E162 Max Flame Spread
		90 Seconds	4 Minutes	Spread
Cushions, Mattresses	All	100	175	25* **
Fabrics	Seat upholstery, mattress ticking & covers, curtains, draperies, wall coverings, & window shades	NR	200	N/A
Other Vehicle Components	Seat & mattress frames, wall & ceiling panels, seat & toilet shrouds, tray & other tables, partitions, shelves, opaque windscreens, end caps, roof housings, & component boxes & covers	100	200	35*
	Flexible cellular foams used in armrests & seat padding	100	175	25* **
	Thermal & acoustic insulation	NR	100	25*
	HVAC ducting	NR	100	35*
	Floor covering	100	200	N/A
Elastomers	Light diffusers, windows & transparent plastic windscreens	100	200	100
	Window gaskets, door nosings, inter-car diaphragms, roof mats, & seat springs	100	200	N/A
Structural Components	Flooring, Other	N/A	N/A	N/A

NR = Not required
 N/A = Not applicable; Another test applies

* In addition, flaming running and/or dripping not permitted.
 ** ASTM D3675

The results contained in this report relate only to the item(s) tested. The test report shall not be reproduced except in full, without written approval from SGS North America.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/terms-e-document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for a maximum of 45 days only.

Tested For: Rebecca Johnson
 3M Company
 3M Center Bldg 230-BE-16
 Maplewood, MN 55144
 USA

Phone: (651) 282-4485
Fax:
Mobile:
PO#: 3501090188
Email:

Received: 1/26/2021
Completed: 2/23/2021
Code: A1
Test Report: 3-42295-1

Key Test: ASTM E162

ASTM D3675; ASTM E162; [ASTM E662 REQUIREMENTS SPECIFIED BY FEDERAL TRANSIT ADMINISTRATION DOCKET 90-A]

Category	Function of Material	ASTM E662 Max Specific Density		ASTM E162 Max Flame Spread
		90 Seconds	4 Minutes	
Seating	Cushion	100	200	25* **
	Frame	100	200	35*
	Shroud	100	200	35*
	Upholstery -Coated	NR	250	N/A
	Upholstery - Uncoated	NR	100	N/A
Panels	Wall	100	200	35*
	Ceiling	100	200	35*
	Partition	100	200	35*
	Windscreen	100	200	35*
	HVAC Ducting	NR	100	35*
	Light Diffuser	100	200	100
Flooring	Wheel Well & Structural	NR	NR	N/A
	Carpeting	NR	NR	N/A
Insulation	Thermal	NR	100	25*
	Acoustic	NR	100	25*
Miscellaneous	Firewall	NR	NR	N/A
	Exterior Shell	100	200	35*

NR = Not required
 N/A = Not applicable; Another test applies

* In addition, flaming running and/or dripping not permitted.
 ** ASTM D3675

The results contained in this report relate only to the item(s) tested. The test report shall not be reproduced except in full, without written approval from SGS North America.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/terms-e-document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for a maximum of 45 days only.

Tested For: **Rebecca Johnson**
3M Company
3M Center Bldg 230-BE-16
Maplewood, MN 55144
USA

Phone: (651) 282-4485
Fax:
Mobile:
PO#: 3501090188
Email:

Received: 1/26/2021
Completed: 2/23/2021
Code: A1
Test Report: 3-42295-1

Key Test: ASTM E162

898

ASTM D3675; ASTM E162; ASTM D662 REQUIREMENTS SPECIFIED BY NFPA 130

Category	Function of Material	ASTM E662 Max Specific Density		ASTM E162 Max Flame Spread
		90 Seconds	4 Minutes	
Cushioning	All individual flexible cushioning materials used in seat cushions, mattresses, mattress pads, armrests, crash pads, & grab rail padding	100	175	25* **
Fabrics	Seat upholstery, mattress ticking & covers, curtains, draperies, window shades, & woven seat cushion suspensions	NR	200	N/A
Other Vehicle Components	Seat & mattress frames, wall & ceiling lining & panels, seat & toilet shrouds, toilet seats, trays & other tables, partitions, shelves, opaque windscreens, combustible signage, end caps, roof housings, articulation bellows, exterior shells, nonmetallic skirts, & component boxes & covers	100	200	35*
	Thermal & acoustical insulation	NR	100	25*
	HVAC ducting	NR	100	25*
	Floor covering	100	200	N/A
	Light diffusers, windows, & transparent plastic windscreens	100	200	100
	Adhesives & sealants	200	200	35*
Elastomers	Window gaskets, door nosings, inter-car diaphragms, seat cushion suspension diaphragms, & roof mats	100	200	N/A
Wire & Cable	All	N/A	N/A	N/A
Structural Components	Flooring, other	NR	NR	N/A

NR = Not required
N/A = Not applicable; Another test applies

* In addition, flaming running and/or dripping not permitted.
** ASTM D3675

The results contained in this report relate only to the item(s) tested. The test report shall not be reproduced except in full, without written approval from SGS North America.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/terms-e-document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for a maximum of 45 days only.