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Tested For:	**Rebecca Johnson**	**Phone:**	**(651) 282-4485**	**Received:**	**1/26/2021**
	3M Company	**Fax:**		**Completed:**	**3/9/2021**
	3M Center Bldg 230-BE-16	**Mobile:**		**Code:**	**A4**
	Maplewood, MN 55144	**PO#:**	**3501090188**	**Test Report:**	**3-42295-4**
	USA	**Email:**			

Key Test: **ISO 5658-2 (EN 45545-2)** 1444

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 1 mm thick Aluminum panels. Adhesive thickness 0.4 mm.

Category: Surface flammability Specifier: Eurorail LE 2013; V 4/17 PC: 24H /dl SM/mg

TEST PERFORMED: ISO 5658-2 Reaction to Fire Tests - Spread of Flame - Part 2: Lateral Spread on Building and Transport Products in Vertical Configuration [LE 2006; V 02/19] --

As cited by BS EN 45545-2:2013 Railway Applications - Fire Protection on Railway Vehicles; Part 2: Requirements for Fire Behaviour of Materials and Components

PRODUCT THICKNESS AS RECEIVED: 2.4 mm

PRODUCT THICKNESS AS TESTED:

- ☒ Tested at actual thickness
- ☐ Product was between 50 mm and 70 mm; An extension clip was used to restrain the product
- ☐ As product exceeded 70 mm thickness, the face was trimmed down to a 50 mm test thickness

SPECIMEN PREPARATION:

- ☐ Each specimen was laid directly over a 12 mm noncombustible backing board.
- ☐ Each specimen was backed by spacers so that a 25 mm air gap existed between the back of specimen and the 12 mm backing board.
- ☐ Each specimen was bonded to a _____ substrate using _____ adhesive.
- ☐ Each specimen was restrained in the testing frame by poultry netting.
- ☒ See client's identification above.

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BRIEF DESCRIPTION OF TEST: A test specimen 155 mm x 800 mm is placed at a specified distance from a gas-fired heater. The specimen is angled so that the near end of the specimen is close to the heater while the far end of the specimen is located further from the heater, thereby receiving a high heat flux at the near end and progressively lower heat fluxes until the far end is reached. An igniting flame is applied to the near end of the specimen. If the specimen is ignited, the technician records the time of the flame front progression as it passes benchmarks which are spaced at 50 mm intervals from the point of ignition. The technician refers to a graph which plots heat flux versus distance. The heat flux value at the point where the specimen ceases flaming is entered as the CFE (Critical Flux at Extinguishment). In addition to the CFE value, burning droplets/particles are recorded when observed.

RESULTS:

Specimen #	CFE (kW/m^2)	Burning Droplets/Particles (yes/no)	Observations (See CODES)
1	50.0	No	DNI
2	11.20	No	M
3	50.0	No	DNI

OBSERVATION CODES:

G	=	Glowing.	DIS	=	Disintegration of the specimen.
C	=	Charring.	F	=	Flashing (report furthest progress).
M	=	Melting.	NUO	=	No unusual observations.
DNI	=	Did not ignite			

NOTE: If a specimen does not ignite, a CFE of 50 is assigned.

CLASSIFICATION CRITERIA AND CONCLUSION: The reader is referred to the "Summary of EN 45545-2 Hazard Levels" contained elsewhere in this report to determine the hazard level based on the results contained in this report. To achieve a complete "Hazard Level Certification", other fire tests are required.

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

Bobby Brown

AUTHORIZED SIGNATURE
SGS NORTH AMERICA
/jab igb

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SUMMARY OF EN 45545-2 HAZARD LEVELS BASED ON TESTING BY ISO 5658-2:

R Set	Hazard Level	Minimum CFE (kW/m²)
R1, R7	HL1	20
	HL2	20
	HL3	20
R2, R3, R4, R17	HL1	13
	HL2	13
	HL3	13
R11	HL1	30
	HL2	30
	HL3	30
R12	HL1	40
	HL2	40
	HL3	40

If the product meets the minimum CFE value but burning particles are noted, additional testing is required in accordance with EN ISO 11925-2 with a 30 second flame application with the following acceptance requirements: Flame spread less than 150 mm within 60 seconds; No burning droplets/particles

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

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