

Exova
2395 Speckman Dr.
Mississauga
Ontario
Canada
L5K 1B3

T: +1 (905) 822-4111
F: +1 (905) 823-1446
E: sales@exova.com
W: www.exova.com



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ASTM E 662 Rate of Smoke Generation of "3100 Series"

A Report To: **Jessup Manufacturing Company**
2815 West Route 120
P.O. Box 366
McHenry, IL 60051
USA

Phone: (815) 322-5202
E-mail: jkecinska@jessupmfg.com

Attention: Jasmina Kecinska

Submitted By: Exova Warringtonfire North America

Report No. 14-002-049(A2)
3 pages + appendix

Date: February 27, 2014

ACCREDITATION To ISO/IEC 17025 for a defined Scope of Testing by the International Accreditation Service

SPECIFICATIONS OF ORDER

Determine rate of smoke generation according to ASTM E 662, as per Jessup Manufacturing Co. Purchase Order No. PO11127 and Exova Warringtonfire North America Quotation No. 14-002-275,881 RV1 accepted January 20, 2014.

IDENTIFICATION

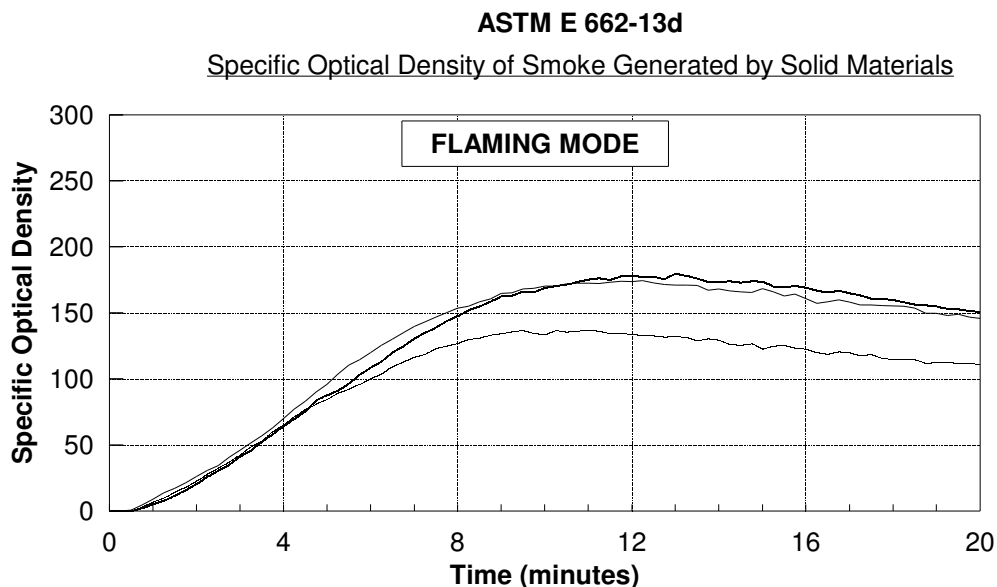
Anti-slip tape, identified as "3100 Series".

(Exova sample identification number 14-002-S0049-1)

SAMPLE PREPARATION

Prior to testing, the anti-slip tape was adhered onto 6 mm thick fiberglass reinforced cement substrate.

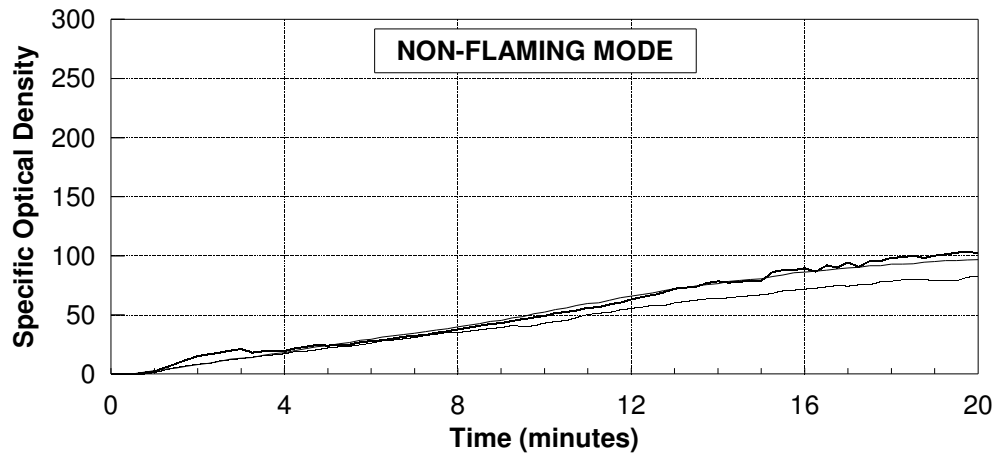
TEST RESULTS



Relative Room Humidity: 20%	Test Duration: 20 min.			Chamber Wall Temp: 35 °C		
Flaming Mode	Test	#1	#2	#3	Average	Specified Maxima
Specific Optical Density at 1.5 minutes		12	15	17	15	100
Specific Optical Density at 4.0 minutes		64	65	70	67	200
Maximum Specific Optical Density		180	137	174	164	-
Maximum Corrected Optical Density		179	135	173	162	-

TEST RESULTS (continued)**ASTM E 662-13d**

Specific Optical Density of Smoke Generated by Solid Materials



Relative Room Humidity: 20%	Test Duration: 20 min.			Chamber Wall Temp: 35 °C		
Non-Flaming Mode	Test	#1	#2	#3	Average	Specified Maxima
Specific Optical Density at 1.5 minutes		9	6	5	7	100
Specific Optical Density at 4.0 minutes		22	18	18	19	200
Maximum Specific Optical Density		104	83	97	95	-
Maximum Corrected Optical Density		103	82	96	94	-

Observations

In the flaming mode, ignition was observed at the point of flame impingement followed by visible smoke production and surface blistering and charring. In the non-flaming mode, visible smoke was observed and was followed by surface blistering.

CONCLUSIONS

The anti-slip tape identified in this report, meets The Federal Railroad Administration requirements as they pertain to rate of smoke generation (ASTM E 662).

Note: This is an electronic copy of the report. Signatures are on file with the original report.

Mel Garces,
Senior Technologist.

Ian Smith,
Technical Manager.

Note: This report and service are covered under Exova Canada Inc. Standard Terms and Conditions of Contract which may be found on the Exova website (www.exova.com), or by calling 1-866-263-9268.

APPENDIX

(1 Page)

Summary of Test Procedure

ASTM E 662-13dSpecific Optical Density of Smoke Generated by Solid Materials

This method of test covers a procedure for measuring the smoke generated by solid materials and assemblies in thickness up to and including 1 inch (25.4 mm). Measurement is made of the attenuation of a light beam by smoke (suspended solid or liquid particles) accumulating within a closed chamber due to nonflaming pyrolytic decomposition and flaming combustion. Results are expressed in terms of specific optical density (Ds), which is derived from a geometrical factor and the measured optical density (absorbance).

As specified, the test samples are pre-dried for 24 hours at 60°C. Section 9.1 of ASTM E 662-13b states to then condition the specimens to "equilibrium (constant weight)" but does not specify a definition or procedure with respect to establishing the "constant weight". Therefore, prior to testing, the specimens are then conditioned for a minimum period of 24 hours at 50 ± 5% relative humidity and 23 ± 3°C.

Three specimens, 3" square, are exposed to each mode of combustion. Prior to test initiation, the chamber wall temperature is established in the range of 33 to 37°C. The % light transmittance during the course of the combustion is recorded. These data are used to express the quantity of smoke in the form of Specific Optical Density based on the following formula, which assumes the applicability of Bouguer's law:

$$D_s = (V/AL) \cdot \log(100/T) = G \cdot \log(100/T) = 132 \cdot \log(100/T)$$

Where: Ds = Specific Optical Density

T = % Transmittance

V = Chamber Volume (18 ft³)

A = Exposed Area of the Sample (0.0456 ft²)

L = Length of Light Path in Chamber (3.0 ft)

G = Geometric Factor

Among the parameters normally reported are:

Ds	
1.5	- specific optical density after 1.5 minutes
Ds	
4.0	- specific optical density after 4.0 minutes
Dm	- maximum specific optical density at any time during the 20 minute test
Dm	
(corr)	- Dm corrected for incidental deposits on the optical surfaces

For floor covering, the Federal Railroad Administration specifies a maximum Ds 1.5 of 100 and a maximum Ds 4.0 of 200 in either flaming or non-flaming test mode.