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Toxic Gas Generation by Materials on Combustion
Boeing Aircraft Standard BSS 7239

Reatec TA–7332

Report Number 13–08073

Test Number 4434–8955
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Sangetsu America, Inc.
New York, New York

Commercial Testing Company

(Authorized Signature)

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INTRODUCTION

This report is a presentation of results of a test for toxic gas generation of burning materials prepared for Sangetsu America, Inc. of New York, New York. The test was conducted in accordance with the Boeing Commercial Airplane Company Specification Support Standard BSS 7239, *Test Method for Toxic Gas Generation by Materials on Combustion*. The purpose of this specification is to determine the levels of specified toxic gases released during combustion under specified thermal exposure conditions.

This standard should be used to measure and describe the response of materials, products, or assemblies to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire–hazard or fire–risk of materials, products, or assemblies under actual fire conditions. However, results of the test may be used as elements of a fire–hazard assessment or a fire–risk assessment which takes into account all of the factors which are pertinent to an assessment of the fire hazard or fire risk of a particular end use.

SCOPE

The Boeing BSS 7239 standard is used to determine the toxic gas generating characteristics of aircraft materials. The gasses specifically covered are carbon monoxide (CO), hydrogen chloride (HCl), hydrogen cyanide (HCN), hydrogen fluoride (HF), nitrogen oxides (NO + NO_2), and sulfur dioxide (SO_2). The test uses the chamber described in ASTM Test Method E 662 and NFPA Test Method 258 for sample combustion.

TEST PROCEDURE

The test apparatus used to conduct this test is described in the American Society for Testing and Materials method E 662, *Specific Optical Density of Smoke Generated by Solid Materials*. Test specimens measuring three inches square are mounted in holders in a vertical orientation in the test chamber. Pyrolytic decomposition of the specimen is carried out in two test modes, Flaming and Non–Flaming. For the flaming mode, specimen combustion is effected using a 6–tube burner, fueled with a propane and air mixture, in combination with an electrically operated radiant heat energy source that is adjusted to give an irradiance level of 2.50 W/cm^2 on the surface of the test specimen. The non–flaming mode employs the radiant heat source only to decompose the specimen. Gas sampling is initiated 240 seconds after the beginning of the test. Two specimens are tested to measure the evolution of any specific toxicant. The final test result is presented as an average of both specimens.

The gas analysis method used on conductance of this test is shown in Table I of the BSS 7239 standard. The sample is drawn from the gas sampling port located at the top center of the test chamber using a Dräger Accuro 2000 programmable gas sampling pump in combination with Dräger colorimetric detector tubes appropriate for the toxicant. The gas detector tubes are lined with layers of reagents which react chemically to a particular gas producing a stain to the reagent layers inside. The amount of toxicant present in the smoke is determined using the scale printed on each calibrated tube.

MATERIAL TESTED

Identification	—	Reatec TA–7332
Type Material	—	Self–Adhering PVC Wallcovering
Nominal Thickness	—	0.008 inch
Nominal Weight	—	1.41 grams per specimen
Color	—	White

TEST RESULT

The test results presented on the following page represent only the specimens tested and are not necessarily indicative of apparent identical or similar material.

Reatec TA–7332

Gas	Test Mode	Sample Volume (cc)	Specimen #1	Specimen #2	Average (ppm)
Carbon Monoxide (CO)	Flaming	100	75	75	75
	Non–Flaming	1000	40	40	40
Hydrogen Fluoride (HF)	Flaming	2000	0	0	0
	Non–Flaming	2000	0	0	0
Hydrogen Chloride (HCl)	Flaming	1000	2	1.5	1.75
	Non–Flaming	1000	3	3	3
Nitrogen Oxides ($NO + NO_2$)	Flaming	500	2	2	2
	Non–Flaming	1000	0	0	0
Sulfur Dioxide (SO_2)	Flaming	1000	5	5	5
	Non–Flaming	1000	5	5	5
Hydrogen Cyanide (HCN)	Flaming	200	5	4	4.5
	Non–Flaming	200	0	0	0