

Bombardier SMP 800-C Toxic Gas Generation of "Supress 5/8" Sound Engineering Drywall" Composite

A Report To: **Supress Products LLC**
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Attention: Gery Steinberg

Submitted By: Fire Testing

Report No. 06-02-371(Revision 1)
3 pages + appendix

Date: January 5, 2007

ACCREDITATION Standards Council of Canada, Registration #1.

REGISTRATIONS

- ISO 9001:2000, registered by QMI, Registration #001109.
- New York City Department of Buildings, MEA Division, Registration #110-05-L.

SPECIFICATIONS OF ORDER

Determine toxic gas production according to Bombardier SMP 800-C, as per your P.O. #0303 and our Quotation No. 06-02-02473 dated April 4, 2006.

IDENTIFICATION

Composite material, nominally 5/8" in total thickness, identified as "Supress 5/8" Sound Engineering Drywall, Part #SED5848".

(Bodycote sample identification number 06-02-S0371)

TEST RESULTS

Bombardier SMP 800-C

Toxic Gas Generation

		<u>Flaming Mode</u>	<u>Non-Flaming Mode</u>	<u>Specified Maxima</u>
Carbon Monoxide (CO ppm)	at 1.5 minutes	<10	<10	-
	at 4.0 minutes	120	<10	-
	at maximum	670	200	3500
Carbon Dioxide (CO2 ppm)	at 1.5 minutes	150	<50	-
	at 4.0 minutes	1400	<50	-
	at maximum	10450	100	90000

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TEST RESULTS (Cont..)

Bombardier SMP 800-C

Toxic Gas Generation

	<u>Flaming Mode</u>	<u>Non-Flaming Mode</u>	<u>Specified Maxima</u>
Nitrogen Oxides (as NO2 ppm)	12	9	100
Sulfur Dioxide (SO2 ppm)	<1	<1	100
Hydrogen Chloride (HCl ppm)	<2	<2	500
Hydrogen Fluoride (HF ppm)	<2	5	100
Hydrogen Bromide (HBr ppm)	<1	<1	100
Hydrogen Cyanide (HCN ppm)	1	<1	100
Original Weight (g)	66.6	67.4	-
Final Weight (g)	<u>53.6</u>	<u>57.6</u>	-
Weight Loss (g)	13.0	9.8	-
Weight Loss (%)	19.59	14.47	-
Time to Ignition (s)	Did not ignite		-
Burning Duration (s)	-	-	-

CONCLUSIONS

The drywall composite material identified in this report, when tested at a total nominal thickness of 5/8" mm, meets Bombardier requirements as they pertain to toxic gas production (Bombardier SMP 800-C).



I. Smith,
Fire Testing.



Richard J. Lederle,
Fire Testing.

Note: This report consists of 3 pages, including the cover page, that comprise the report "body". It should be considered incomplete if all pages are not present. Additionally, the Appendix of this report comprises a cover page, plus 1 page.

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APPENDIX

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Summary of Test Procedure

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Bombardier SMP 800-C

Toxic Gas Sampling and Analytical Procedures

Toxic Gas Generation

Gases produced for analysis are generated in a specified, calibrated smoke chamber during standard rate of smoke generation testing (typically ASTM E 662), in both flaming combustion and non-flaming pyrolytic decomposition test modes.

Carbon Monoxide (CO) and Carbon Dioxide (CO₂)

CO and CO₂ are monitored continuously during the 20 minute test using a non-dispersive infrared (NDIR) analyzer. Data are reported in ppm by volume at 1.5 and 4.0 minutes and at maximum concentration.

Acid Gas Sampling

HCN, HF, HCl, HBr, NO_x and SO₂ are sampled by drawing 6 litres of the chamber atmosphere through two midget impingers, each containing 10 ml of 0.25N NaOH, at a rate of 400 ml per minute. The 15 minute sampling period is commenced at the 4 minute mark. All determinations are performed in both the flaming and non-flaming modes and all data are reported in parts per million (ppm) by volume in air.

Analysis of Impingers for Hydrogen Cyanide (HCN)

Cyanide in the NaOH impinger, as NaCN, is converted to CNCl by reaction with chloramine-T at pH greater than 8 without hydrolyzing to CNO⁻. After the reaction is complete, CNCl forms a red-blue colour on addition of a pyridine-barbituric acid reagent. Cyanide is quantified by spectrometric measurement of the increase in colour 578 nm. Reference: In-house SOP 00-13-SP-1216 based on ASTM Method D 2036-91

Analysis of Impingers for Hydrogen Fluoride (HF)

Fluoride, as NaF, in the NaOH impinger is determined using SPADNS colorimetry. Reference: In-house SOP 01-13-SP-1295

Analysis of Impingers for Hydrogen Chloride (HCl) and Hydrogen Bromide (HBr)

Alkali halides (chloride and bromide) formed in the NaOH solution are measured using ion chromatography with conductivity detection. Reference: In-house SOP 02-13-SP-1402

Analysis of Impingers for Nitrogen Oxides (NO_x)

Nitrite and nitrate formed in the alkaline solution are determined using ion chromatography with conductivity detection. The nitrite and nitrate results are combined and the total expressed as nitrogen dioxide (NO₂). Reference: In-house SOP 02-13-SP-1402

Analysis of Impingers for Sulfur Dioxide (SO₂)

SO₂ is trapped in the NaOH impinger as sulfite and sulfate (SO₃⁻² and SO₄⁻²). Hydrogen peroxide is added to convert SO₃⁻² to SO₄⁻². Resulting sulfate is determined using ion chromatography with conductivity detection. Reference: In-house SOP 02-13-SP-1402