



Test Report

No. 3645379-CH01-R1

Date: January 5, 2015

Page 1 of 8

Caroline Ceiling
8702-G Statesville Road
Charlotte, NC 28269
United States

This report supersedes all previous documents bearing the test report number 3645379-CH01.

The following sample(s) was/were submitted and identified by/on behalf of the client as: **PVC Sheets**
Color: Black
Sample/Style #: SGS-1

Sample Received Date: **12/2/2014**

Testing Period **12/4/2014 – 12/22/2014**

Test Requested : Please refer to the result summary.

Test Method & Results : Please refer to next page(s).

Result Summary :

Test Requested	Conclusion
1) EN71-3: 2013 – Migration of certain elements (As specified by the client)	PASS
2) Perform standard flame spread and smoke density developed classification tests on the sample supplied by the Client in accordance with ASTM Designation E84-14, "Standard Method of Test for Surface Burning Characteristics of Building Materials". The foregoing test procedure is comparable to UL 723, ANSI/NFPA No. 255, and UBC No. 8-1.	See test results

Signed for and on behalf of SGS North America, Inc.

Prepared By:

Manoj Aluri
Chemist, Chemistry Laboratory

Veronica Marrero
Laboratory Operations Lead, Chemistry Laboratory

"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 45 days only."

1) EN71-3: 2013 – Migration of certain elements (As specified by the client)
Category III: Scraped-off toy material

Method : With reference to EN71-3:2013. Analysis of general elements was performed by ICP-MS. Chromium (III) was obtained by calculation, chromium (VI) was analyzed by IC-UV/VIS by UV/Vis spectrometry. Organic Tin was analyzed by GC-MS.

Test Item	Result (mg/kg)	Reporting Limit (mg/kg)	Permissible Limit (mg/kg)
	1		
Mass of trace amount (mg)	--	--	--
Soluble Aluminium (Al)	ND	50	70,000
Soluble Antimony (Sb)	ND	10	560
Soluble Arsenic (As)	ND	10	47
Soluble Barium (Ba)	ND	50	18,750
Soluble Boron (B)	ND	50	15,000
Soluble Cadmium (Cd)	ND	5	17
Soluble Chromium (Cr)	ND	0.15	--
Soluble Chromium (III) (Cr (III))	Not conducted*	1	460
Soluble Chromium (VI) (Cr (VI))	Not conducted*	0.15	0.2
Soluble Cobalt (Co)	ND	50	130
Soluble Copper (Cu)	ND	50	7,700
Soluble Lead (Pb)	ND	10	160
Soluble Manganese (Mn)	ND	50	15,000
Soluble Mercury (Hg)	ND	10	94
Soluble Nickel (Ni)	ND	10	930
Soluble Selenium (Se)	ND	10	460
Soluble Strontium (Sr)	ND	50	56,000
Soluble Tin (Sn)	ND	2.5	180,000
Soluble Organic Tin	Not conducted†	--	12
Soluble Zinc (Zn)	ND	50	46,000
Comment	PASS	--	--

Sample Description :

1. Black PVC Sheets

Remark : * = Confirmation test of soluble chromium (III) & chromium (VI) is not required since soluble chromium does not exceed the requirements as specified in EN71-3: 2013.

† = Confirmation test of soluble organic tin is not required since soluble tin, after conversion, does not exceed the soluble organic tin requirement as specified in EN71-3: 2013.

"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-Documents.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 45 days only."



- Note:
1. mg/kg = milligram per kilogram
 2. ND = Not Detected
 3. 1% = 10000 mg/kg = 10000 ppm

"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-Documents.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 45 days only."



2) TEST RESULTS: *Testing performed by an SGS affiliate.*

Flame Spread

10

Smoke Developed

190

Detailed test results are presented in the subsequent page of this report.

CONCLUSION: The submitted material meets the requirements for a “Class A” Flame Spread.
See classification requirements on page 5.

“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-Documents.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 45 days only.”



PREPARATION: The sample material was cut to 22" wide by 24" feet long to meet test chamber dimensions. The sample was supported during testing by 2" hexagonal mesh poultry netting running the length of the test chamber and 1/4" round metal rods placed at two foot intervals across the width of the test chamber.

CONDITIONING: The test specimen was conditioned to a constant weight at a temperature of $73.4 \pm 5^{\circ}$ F ($23 \pm 2.8^{\circ}$ C) and a relative humidity of 50 ± 5 %.

CEMENT BOARD PLACEMENT: The 1/4" cement boards were placed between the test specimen and the chamber lid

**E 84 TEST
DATA
SHEET:**

CLIENT: SGS NORTH AMERICA.

DATE: 12/22/14

SAMPLE: PVC Sheet, Color: Black, Style # SGS-1.

IGNITION: 2 seconds.

FLAME FRONT: 2 feet maximum.

TIME TO MAXIMUM SPREAD: 6 seconds.

TEST DURATION: 10 minutes.

CALCULATION: $19.87 \times 0.515 = 10.23$

Observations: Melting

SUMMARY: FLAME SPREAD: 10 SMOKE DEVELOPED: 190

"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-Documents.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 45 days only."

SUMMARY OF ASTM E84 RESULTS: Because of the possible variations in reproducibility, the results are adjusted to the nearest figure divisible by 5. Smoke Density values over 200 are rounded to the nearest figure divisible by 50.

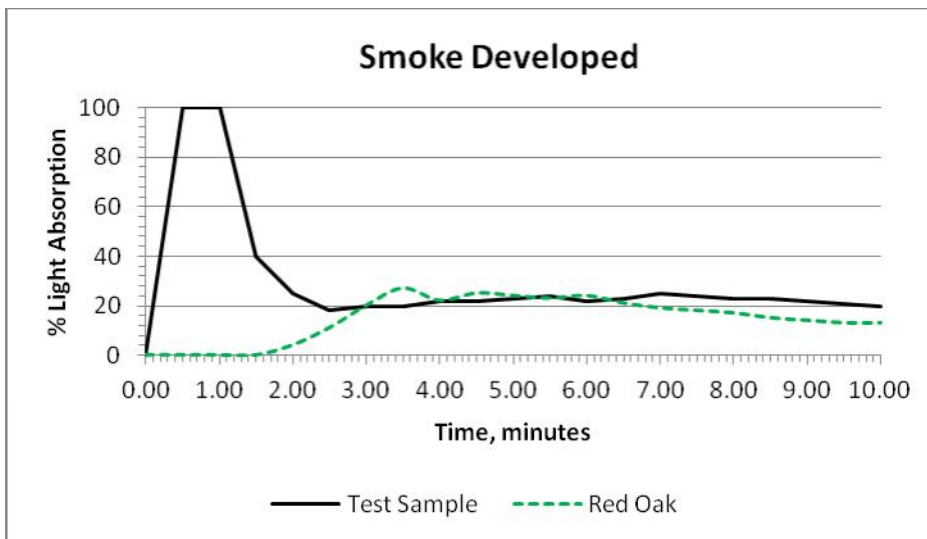
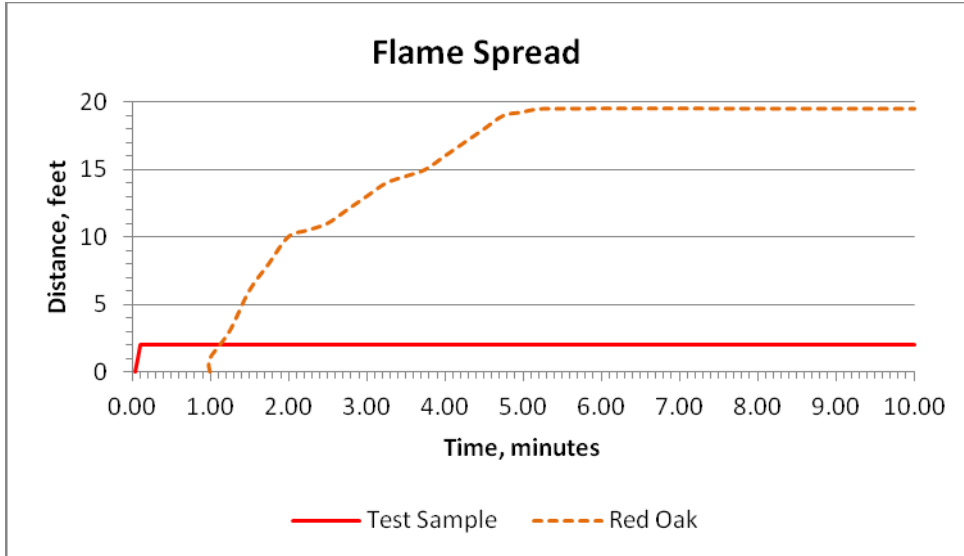
In order to obtain the Flame Spread Classification, the above results should be compared to the following table:

<u>NFPA CLASS</u>	<u>IBC CLASS</u>	<u>FLAME SPREAD</u>	<u>SMOKE DEVELOPED</u>
A	A	0 through 25	Less than or equal to 450
B	B	26 through 75	Less than or equal to 450
C	C	76 through 200	Less than or equal to 450

BUILDING CODES CITED:

1. National Fire Protection Association, ANSI/NFPA No. 101, "Life Safety Code".
2. International Building Code, Chapter 8, Interior Finishes, Section 803.

"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 45 days only."



"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 45 days only."

Sample Photo:



SGS authenticates the photo on the original report only

*** End of Report ***

"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 45 days only."