

CLIENT: SUNGHYUN CHEMICALS CO., LTD
465 Chogeum-ro Geumwang-eup Eumseong-gun
Chungbuk Korea

Test Report No: RJ3838-1

Date: May 20, 2015

SAMPLE ID: The test samples are identified as: Hicote ET Vermiculite

SAMPLING DETAIL: Test samples were submitted to the laboratory directly by the client. No special sampling conditions or sample preparation were observed by QAI.

DATE OF RECEIPT: Samples were received at QAI on March 26, 2015.

TESTING PERIOD: May 11, 2015.

AUTHORIZATION: SGS Ref No. AYAA15-07868.

TEST REQUESTED: Perform standard flame spread and smoke density developed classification tests on the sample supplied by the Client in accordance with ASTM Designation E84-15a, "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.

TEST RESULTS:	<u>Flame Spread</u>	<u>Smoke Developed</u>
	0	5

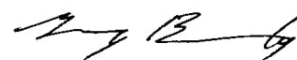
Detailed test results are presented in the subsequent pages of this report

Prepared By



Brian Ortega
Test Technician

**Signed for and on behalf of
QAI Laboratories, Inc.**



Greg Banasky
Senior Test Technician

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PREPARATION: The Hicote ET coating was trowel applied at a thickness of 19.05mm (3/4") inch to 1" nominal On o three 24" wide by 8' Feet long (1/4") inch cement board substrates to conform to tunnel test dimensions.

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

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

E 84 TEST DATA SHEET:

CLIENT: SUNGHYUN CHEMICALS CO., LTD. **DATE:** 05-11-2015

SAMPLE: Hicote ET Vermiculite

FLAME SPREAD:

IGNITION: Did not ignite.

FLAME FRONT: 0

TIME TO MAXIMUM SPREAD: 0

TEST DURATION: 10 minutes.

CALCULATION: N/A

OBSERVATIONS: Slight surface discoloration and slight charring in the flame impingement area.

SUMMARY: FLAME SPREAD: 0 **SMOKE DEVELOPED:** 5

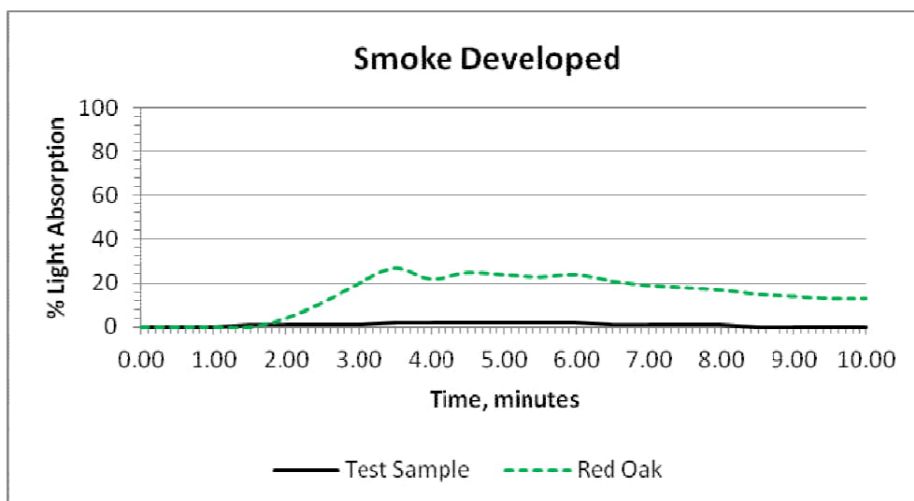
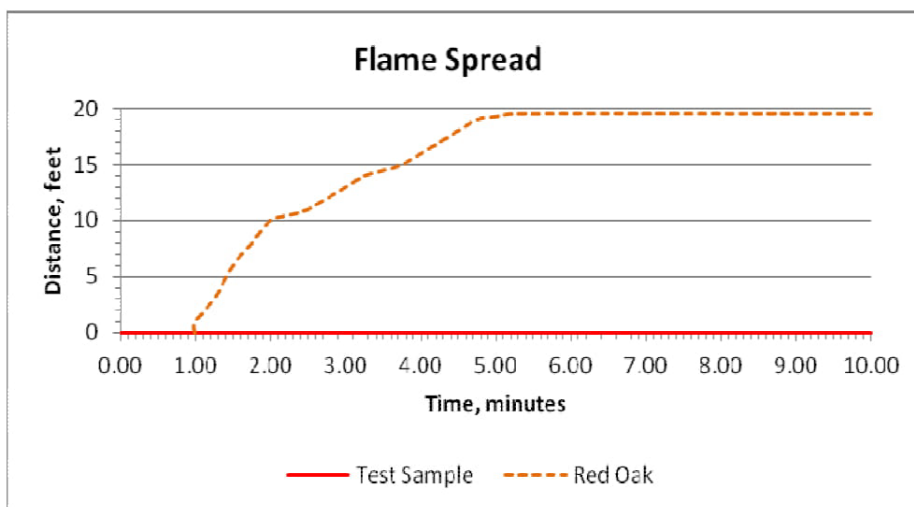
SUMMARY OF ASTM E84 RESULTS: Because of the possible variations in reproducibility, the results are adjusted to the nearest figure divisible by 5. Smoke Density values over 200 are rounded to the nearest figure divisible by 50.

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.



End of Test

CLIENT: **SUNGHYUN CHEMICALS CO., LTD**
465 Chogeum-ro Geumwang-eup Eumseong-gun
Chungbuk, Korea

Test Report No: RJ3838P-2

Date: April 3, 2015

SAMPLE ID: Hicote ET Vermiculite SFRM SGS Korea File No; AYAA15-07869.

SAMPLING DETAIL: Test samples were submitted to the laboratory directly by the client. No special sampling conditions or sample preparation were observed by QAI.

DATE OF RECEIPT: Samples were received at QAI on February 16, 2015.

TESTING PERIOD: March 18, 2015.

AUTHORIZATION: QAI Test Proposal SP-2014-081803 Rev.2 dated February 19, 2015 signed by June Lee of SGS Korea Co., Ltd on February 23, 2015.

TEST PROCEDURE: Testing was performed in accordance with ASTM E 605-93(2011), *Standard Test Methods for Thickness and Density of Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members*.

TEST RESULTS:

Specimen #	Dry Thickness (in)	Dry Density (pcf)
1	0.955	20.7
2	0.935	20.5
Average	0.945	20.6

Prepared By



Larry Burmer
Project Leader-Physical Testing

**Signed for and on behalf of
QAI Laboratories, Inc.**



Jose Elias
Operations Manager

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