

CLIENT: HANKUK HANISO CO., LTD
1668, Bogun-ri, Songak-eup, Dangjin-gun
Chungcheongnam-do 343-827
KOREA

Test Report No: TJ0975

Date: January 9, 2013

SAMPLE ID: The Client submitted and identified the following test material as "GLASS WOOL INSULATION".

SGS REF NO.: AYAA12-44715

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 facilities on December 18, 2012

TESTING PERIOD: January 1, 2013

AUTHORIZATION: Proposal CO111612-3 signed by Jungeun Kang on December 13, 2012

TEST REQUESTED: Perform standard flame spread and smoke density developed classification tests on the sample supplied by the Client in accordance with ASTM Designation E84-12, "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 | 20 |

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

Prepared By

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



Gregory Ertel
Fire Test Technician



J. Brian McDonald
Operations Manager



PREPARATION AND CONDITIONING: The sample was submitted and tested one 24 foot long panel measuring 21 inches wide and approximately 2 inches thick. The sample material was placed into conditioning at 73°F (±5°F) and 50% (±5%) relative humidity until day of testing.

E 84 TEST DATA SHEET:

MOUNTING METHOD: The sample was supported during testing by 2" hexagonal mesh poultry netting running the length of the test chamber and ¼" round metal rods placed at 2' intervals across the width of the test chamber.

CLIENT: HANKUK HANISO CO LTD **DATE:** January 2, 2013

SAMPLE: Glass Wool Insulation

IGNITION: 0 minutes, 0 seconds

FLAME FRONT: 0 feet maximum

TIME TO MAXIMUM SPREAD: 0 minutes, 00 seconds

TEST DURATION: 10 minutes, 00 seconds

SUMMARY: FLAME SPREAD: 0 (0.0 unrounded)

SMOKE DEVELOPED: 20 (22 unrounded)

OBSERVATIONS:

Steady ignition during test did not occur. Sample began to char at 4 minutes into test without ignition. At the point of charring, the sample began to shrink away from itself. No after burn was noted at conclusion of 10 minute test.

CALIBRATION DATA:

| | |
|---|-------|
| Time to Ignition of Last Red Oak (sec): | 45 |
| Red Oak Smoke Area (%A*Min): | 112 |
| Maximum Temperature (°F): | 555 |
| Time to Maximum Temperature (min:sec): | 9:30 |
| Total Fuel Burned (ft ³) | 54.72 |

SUMMARY OF ASTM E84 RESULTS:

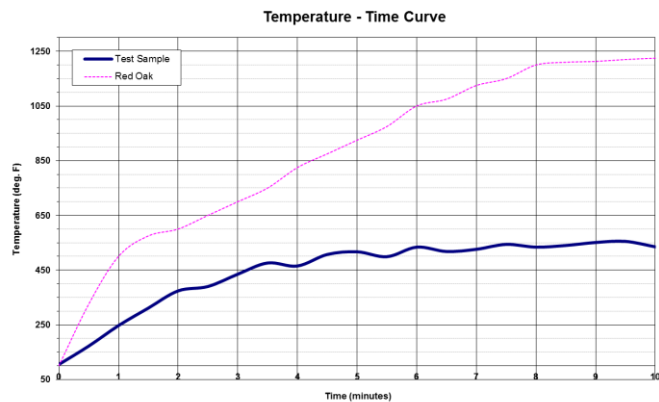
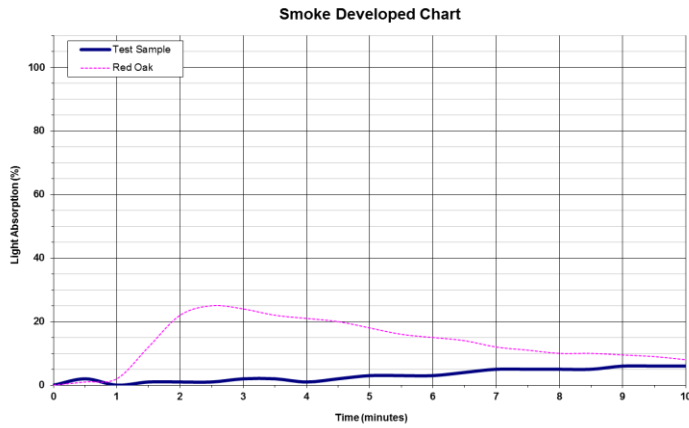
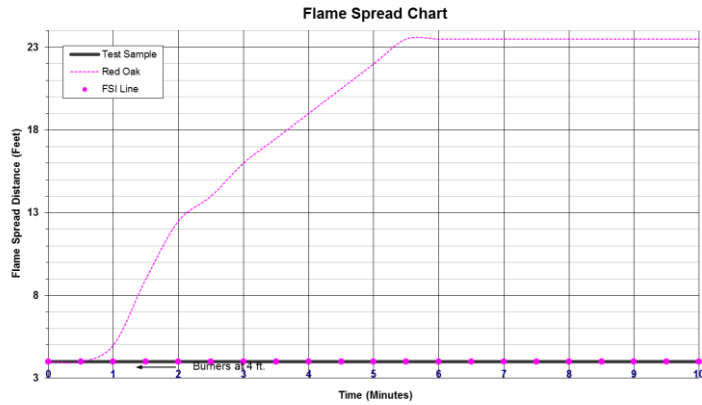
Because of the possible variations in reproducibility, the results are adjusted to the nearest figure divisible by 5. Smoke Density values over 200 are rounded to the nearest figure divisible by 50.

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", 2006 Edition.
2. International Building Code, 2006 Edition, Chapter 8, Interior Finishes, Section 803.



END OF REPORT

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