

ITS Intertek Testing Services

193-7126
ACE/Security Laminates Inc.

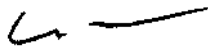
Surface burning characteristics test report on
a glass coating system
performed in accordance
with ASTM E84

Test performed for:

ACE/Security Laminates Inc.
200 Isabella
Suite #500
Ottawa, Ontario
K1S 1V7

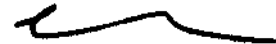
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PREFACE.

This report describes the tests, standards and details for the Glass coating system submitted by the client.

This report does not automatically imply product certification. Products must bear WH mark in order to demonstrate Warnock Hersey Certification.

The tests were conducted to ASTM-E84(97) as requested by the client.

INTRODUCTION.

Upon request from the client. Intertek Testing Services NA Ltd, conducted flammability tests to evaluate the surface burning characteristics of the samples submitted.

Testing was conducted in accordance with ASTM-E84(97) "Standard Test Method for Surface Burning Characteristics".

The materials were tested on the ceiling of the test chamber. Samples submitted allowed for Three (3) tunnel tests.

Upon reception of the samples at the ITS laboratory they were placed in the conditioning room where they remained in an atmosphere of $23 \pm 3^{\circ}\text{C}$ ($73.4 \pm 5^{\circ}\text{F}$) and $50 \pm 5\%$ relative humidity until mass stability.

For each test four (4) full lengths of glass were utilized. They were laid on the ledge of the tunnel their long axis parallel to the tunnel's, the surface of the coating facing down.

Tests were performed on the 18th of May 1999.

MATERIAL SPECIFICATIONS.

The sample submitted to test is as glass with film.

The glass is 0.222 in thickness.

Samples were received by transport on the 8th of April 1999.

TEST PROCEDURE

The results of the tests are expressed by two (2) indexes. Each index gives the characteristics of the sample under test relative to that of select grade red oak flooring and asbestos-cement board.

Equipment utilized is a Steiner Tunnel having the following equipment inventory number *180-069

A) FLAME SPREAD CLASSIFICATION:

This index relates to the rate of progression of a flame along a sample in the 7.6 meter tunnel.

A natural gas flame is applied to the front of the sample at the start of the test and drawn along the sample by a draft kept constant for the duration of the test which is 10 minutes.

An observer notes the progression of the flame front relative to time.

The flame spread classification for red oak flooring is 100, and 0 for asbestos-cement board.

CALCULATIONS.

According to the test standard, the flame spread classification is equal to $4900/(195-A_t)$ where A_t is the total area beneath the flame spread curve when the area exceeds 97.5 ft.min

If the area beneath the curve is less than or equal to 97.5 ft.min. the classification becomes $0.515 \times A_t$.

Our measurements were however performed utilizing the metric system and converted for calculations.

B) SMOKE DEVELOPED:

A photocell is used to measure the amount of light which is blocked off by the smoke passing down the tunnel duct.

When the smoke from a burning sample blocks the light beam, the output from the photocell decreases. This decrease with time is recorded and compared to the results obtained for red oak which is 100 and 0 for asbestos cement board.

RESULTS

4.0 RESULTS

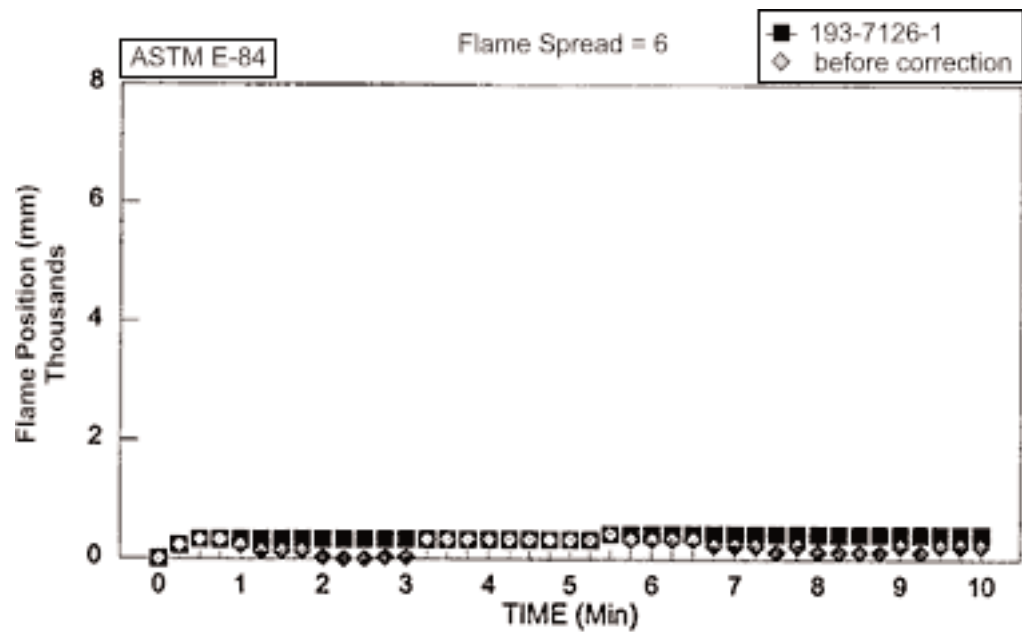
Sample	Flame spread	Smoke developed
Run #1	6	4
Run #2	3	13
Run #3	5	13
AVERAGE*1	5	10

*1: Averages are rounded up to the next multiple of 5

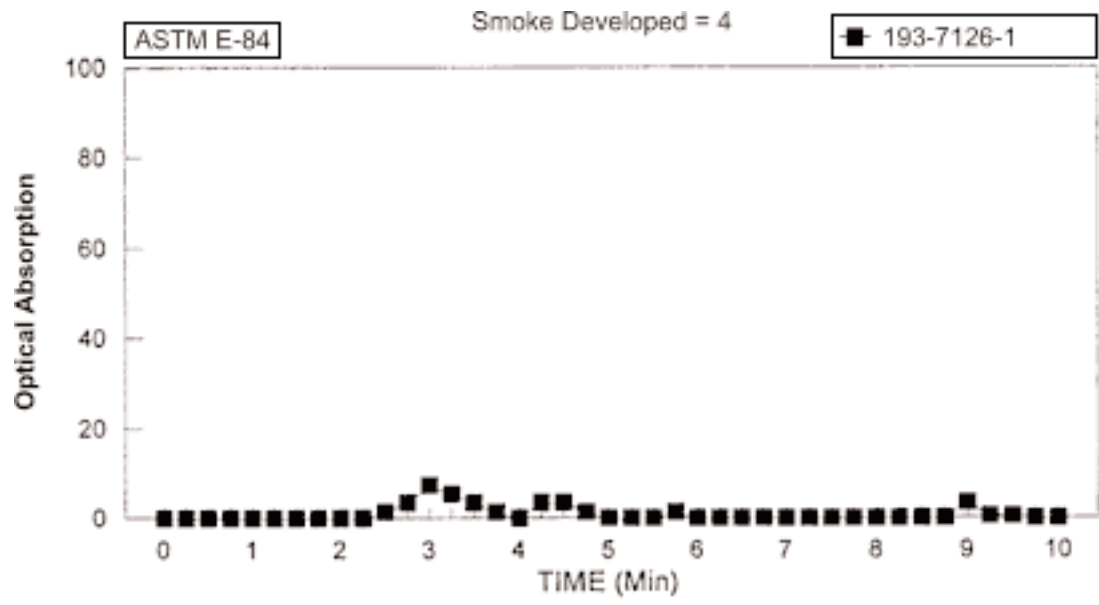
GRAPHIC RESULTS

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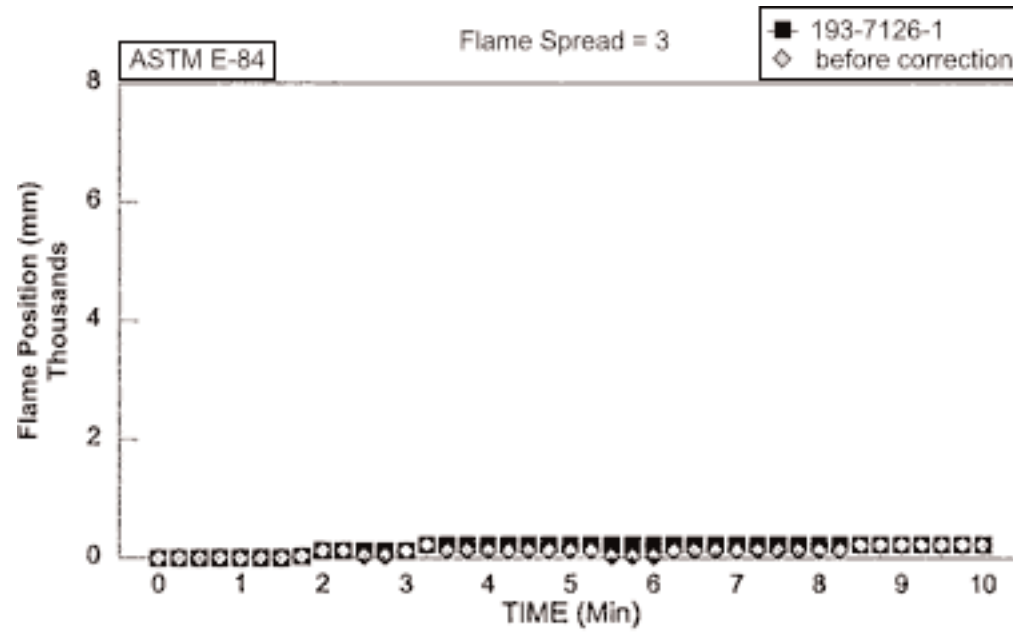
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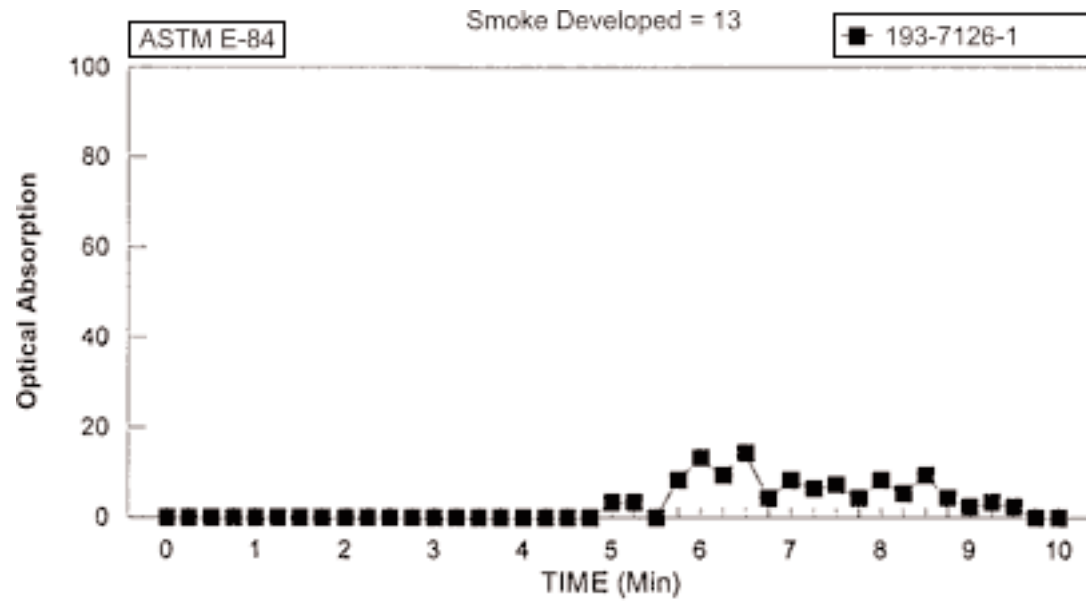
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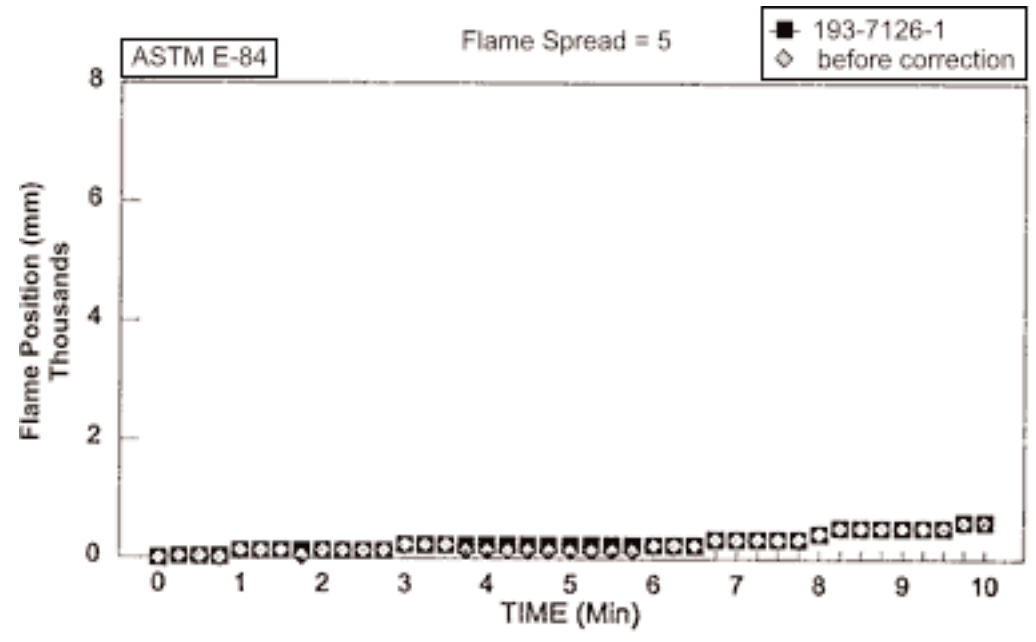
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