

ASTM E 648-03
Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source

TEST REPORT

Client: Greatmats.com
Address: 117 Industrial Ave.
Milltown, WI 54858

Report No: 3118371SAT-004

Sample Received: March 16, 2007
(This sample was received in good condition)

Test Date: March 22, 2007
Report Date: March 29, 2007

Sample Conditioning: 69.8±5.4°F and 50±5% relative humidity

Sample Identification

1 PMA

Description

1 inch premium martial arts mats

Sample Preparation

The specimen was tested with a 0.25-inch cement board as a substrate. An adhesive material was not used.

Environmental Conditions: 73°F and 51% r.h.

This Test Witnessed by: n/a

Test Overview

This procedure provides a way of measuring *critical radiant flux* (the level of incident radiant heat energy on a floor covering system at the most distant flame-out point, reported as W/cm^2) of horizontally mounted floor-covering systems exposed to a flaming ignition source while being exposed to radiant heat energy from a panel with approximately a 30° angle from the horizontal. The radiant flux ranges from 0.99 W/cm^2 at the 100 mm mark to 0.11 W/cm^2 at the 900 mm mark.

Test Procedure

At least three specimens shall be tested. The specimens are conditioned at $69.8 \pm 5.4^\circ F$ and a relative humidity of $50 \pm 5\%$ for a minimum of 48 hours. After the ASTM E 648 calibration procedures, the specimen is loaded into the test chamber. After a 5 minute pre-heat time, the pilot flame is placed on top of the specimen at the 0 mm mark. This pilot flame is to remain in contact with the specimen for 5 minutes, then removed. If the specimen does not propagate flame within 5 minutes following pilot burner flame application, the test is terminated. For specimens that do propagate flame, the test is continued until the flame goes out. The distance to the farthest flame-out point is noted, which is then used to determine the critical radiant flux, based on a radiant heat energy flux profile curve of the apparatus obtained during the calibration.

Test Results

Specimen	1	2	3
Maximum Distance (mm)	812	749	721
Time to Max. Distance (min.)	40.4	44.4	38.1
Critical Radiant Flux (W/cm^2)	0.13	0.15	0.17
Time to All Flame Out(min.)	43.2	49.1	40.2

Observations (min: sec)

Run No.	Smoking	Discolored	Blisters	Melting	Ignition
1	0:09	0:33	5:15	2:07	5:03
2	0:07	0:34	5:13	2:17	5:01
3	0:09	0:33	5:11	2:29	5:01

The average critical flux was $0.15 cm^2$ and the standard deviation was 0.02.

The coefficient of variation was 14.05.

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This report contains a total of three pages.



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March 29, 2007

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March 29, 2007