

**ASTM C1338 (2008): Standard Test Method for
Determining Fungi Resistance of Insulation
Materials and Facings.**

Polyurethane Foam (LD-C-50)

Canadian Project No. G100033767

February 28, 2010

Prepared for:
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INTERTEK TESTING SERVICES NA, Inc. REPORT

1717 Arlingate Lane

COLUMBUS, OHIO 43228

CANDAIA PROJECT NO.: G100033767

DATE: February 28, 2010

INTERIM REPORT NO: 500208723COL-001

RENDERED TO:

Icynene Inc.
6747 Campobello Road
Mississauga, L5N 2L7, CA

STANDARD REFERENCED AND TEST METHOD:

ASTM C1338 (2008): Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings.

AUTHORIZATION:

The test was authorized by John Evans; A representative from Icynene Inc.

TEST DESCRIPTION:

Intertek has conducted testing for Icynene Inc on polyurethane foam (LD-C-50) to evaluate fungal resistance. The test performed was ASTM C 1338(2008): Standard test Method for Determining Fungi Resistance of Insulation Materials and Facings. The microbiological test sample evaluations were conducted at the Intertek Laboratory located in Columbus, OH between February 1, 2010 and February 28, 2010. The samples were received at the testing site on February 1, 2010 in good condition. The polyurethane foam (LD-C-50) is currently in production. The polyurethane foam (LD-C-50) was tested for its ability to resist contaminants when exposed to *Aspergillus niger* (ATCC # 9642), *Penicillium pinophilum* (ATCC # 11797), *Chaetomium globosum* (ATCC # 6205), *Aspergillus flavus* (ATCC # 9643) and *Aspergillus versicolor* (ATCC # 11730). Three samples of the material were exposed to the fungi.

SPECIMEN PREPARATION

The samples provided by the client were cut at the laboratory to the proper length and width of 4 in (80mm) x 4 in (80mm) with a thickness of 4 in (80mm). The samples were pre-conditioned for 4 hours at $86 \pm 4^{\circ}\text{F}$ ($30 \pm 2^{\circ}\text{C}$) and $95 \pm 4\%$ and the test was maintained at $86 \pm 4^{\circ}\text{F}$ ($30 \pm 2^{\circ}\text{C}$) and $95 \pm 4\%$ for a period of 28 days ± 8 hours.

TEST DESCRIPTION

Samples:

1. For visual evaluation three specimens were inoculated, unless otherwise specified by client
2. Sufficient amount of Czapek Dox agar and Sabouraud Dextrose agar were poured into sterile containers based on size of specimens. Once agar was solidified, specimens were placed on agar. Control samples were placed on Whatman filter paper and then placed on each agar. Comparative material (white birch tongue depressors) was used to determine relative growth.

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3. The surface of the agar/specimen was inoculated with the spore suspension by spraying suspension over the specimens so that the entire surface is moistened with spore suspension
4. The test specimens were covered and incubated at $30^{\circ}\text{C} \pm 2^{\circ}\text{C}$ with a relative humidity of $95\% \pm 4\%$, for 28 days + 8hrs from the time of incubation.

CALIBRATED EQUIPMENT:

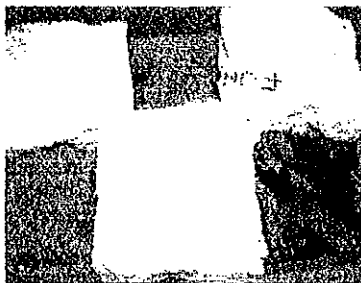
CE 1141-Micropipette (Fisherbrand), Calibrated 03/06/09, Calibration Due 03/06/10
 CE 1142-Environmental Chamber (Thermotron) Model SM 3.5S (For Reference Only)
 CE 1161-Digital Hygrometer (Fisher), Calibrated 10/15/09, Calibration Due 10/15/10
 CE 1143-Balance (Ohaus), Calibrated 12/19/09, Calibration Due 02/19/10
 CE 1126-Autoclave (Napco), Calibrated 03/10/09, Calibration Due 03/10/10

RESULTS:

The comparative material has shown complete growth over the material's surface. The original number of fungus aerosolized onto the surface was 1.0×10^6 cfu/ml.

Material	<i>A. niger</i>	<i>P. Pinophilum</i>	<i>C. globosum</i>	<i>A. flavus</i>	<i>A. versicolor</i>
Polyurethane Foam (LD-C-50)	Devoid of Growth	Devoid of Growth	Devoid of Growth	Devoid of Growth	Devoid of Growth

Test Samples:

**CONCLUSION:**

This report documents the performance of the polyurethane foam (LD-C-50)'s ability to resist fungal contaminants. The polyurethane foam (LD-C-50) does meet the acceptance criteria and does demonstrate the resistance of fungal contamination.

Test Performed by:

Shannon Meier
 Microbiologist
 Columbus Office

Report Approved by:

Ramzi Amawi
 Operations Manager
 Columbus Office

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