



International Specialty Products

**CONFIDENTIAL**

## TECHNICAL SERVICE REPORT

**Fiberlock Technologies, Inc.  
Andover MA**

### **OBJECTIVE:**

To evaluate customer submitted samples for resistance to fungal defacement in accordance with ASTM D5590-94 entitled "*Determining the Resistance of Paint Films and Related Coatings to Fungal Defacement by Accelerated Four-Week Agar Plate Assay.*" This report contains information previously reported in TSR# 105-2702-2501-113, issued 09/19/05.

### **CONCLUSION:**

Fiberlock IAQ 9000 provided adequate fungal resistance under ASTM D5590-94

### **DISCUSSION:**

The results for the ASTM D-5590-94 fungal evaluation are presented in Table I. A fungal growth rating of "0" corresponds to the complete absence of surface growth and a rating of "10" corresponds to complete coverage of the surface by fungal growth. A rating of "3" or less generally indicates that the coating should be resistant to fungus under actual use conditions. The lower growth ratings normally correspond to longer time periods of fungus free surface under actual use conditions. Ratings with a "Z" prefix indicate a zone of inhibition in

millimeters on the surrounding agar in addition to a "0" growth rating on the sample. A large zone of inhibition indicates good biocidal effectiveness against the test fungi, but it also suggests that the fungicide is migrating out of the coating (high potential for leaching). Leached samples showing a significant decrease in efficacy (increase in growth rating or decrease in zone of inhibition) versus the corresponding unleached sample indicate that the biocide is leaching from the coating to some extent.

## **EXPERIMENTAL:**

### ASTM D 5590-94 (Four-Week Agar Plate Test for Fungal Resistance):

The samples were prepared for fungal evaluation by casting 3-mil wet films on drawdown paperboard and drying for 24 hours. Two 1-inch wide strips were cut from each. One strip was leached with distilled water in a one-gallon container at a flow rate of six changes per day for 24 hours and dried again, while the other remained unleached.

The samples were then placed on the surface of solidified malt agar plates. One square from each thus prepared was then inoculated with a mixed spore suspension of Aspergillus niger (ATCC 6275) and Penicillium funiculosum (ATCC 11797), and another square inoculated with a homogenate of Aureobasidium pullulans (ATCC 9348). All plates were incubated at 28°C under 85-90% relative humidity for four weeks. Observations of growth were recorded weekly.

**TABLE I**  
**ASTM D5590-94**  
**RESISTANCE TO FUNGAL DEFAACEMENT**  
**FOUR WEEK AGAR PLATE TEST**

<u>Samples</u> <u>Weeks</u>	Growth Ratings <sup>(1)</sup>															
	<u>Mixed Inoculum</u> <sup>(2)</sup>								A. <u>pullulans</u>							
	<u>Leached</u>				<u>UnLeached</u>				<u>Leached</u>				<u>UnLeached</u>			
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
IAQ 9000	Z1	Z1	Z1	Z1	Z3	Z3	Z3	Z3	0	0	0	0	Z3	0	0	0

**LEGEND:**

1. Growth ratings are on a scale of "0" to "10", where "0" corresponds to the complete absence of fungal growth, and "10" corresponds to complete coverage by fungus.
2. Mixed fungal culture suspension of Aspergillus niger and Penicillium funiculosum.