

# ASTM G21-09

## *Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi*

*FINAL REPORT: R2016-223-1A*

Prepared for:  
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TESTING CERT: #2832.01

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## **Objective:**

To evaluate the mold resistance properties of one sample as seen in the ASTM G21 fungal resistance test.

## **Test Sample Identification:**

1. 20oz. Printed and Embossed Type II Osnaburg Backed Commercial Vinyl Wallcovering (YM)

## **Test Procedure Summary:**

Samples are placed onto the surface of ASTM G21 nutrient salts agar and sprayed with a mixed spore suspension of five fungal cultures. The nutrient salts agar provides all of the trace nutritional elements needed by fungi to support growth. However, to achieve a heavy growth, the fungi must use the test material as its primary carbon source. Inoculated samples are incubated and then examined for fungal growth.

### Test Variables

<b>Test Organisms:</b>	<i>Aspergillus brasiliensis</i> <sup>1</sup> <i>Penicillium funiculosum</i> <sup>2</sup> <i>Chaetomium globosum</i> <i>Trichoderma virens</i> <sup>3</sup> <i>Aureobasidium pullulans</i>	ATCC 9642 ATCC 11797 ATCC 6205 ATCC 9645 ATCC 15233
<b>Sample Description:</b>	2" x 2" printed vinyl squares	
<b>Number of Replicates per Sample:</b>	Three	
<b>Method of Sterilization /Pre-Cleaning:</b>	UV Sterilized prior to testing	
<b>Positive Growth Control:</b>	Sterile Filter Paper	
<b>Media Used:</b>	Nutrient-Salts Agar prepared according to standard	
<b>Environmental Conditions:</b>	28 - 30°C; ≥85% relative humidity	
<b>Incubation Duration:</b>	28 days	
<b>Deviations from Standard Test Method:</b>	None, testing performed per ASTM G21 without deviation.	

<sup>1</sup> Historically known as *Aspergillus niger*

<sup>2</sup> Historically known as *Penicillium pinophilum*

<sup>3</sup> Historically known as *Gliocladium virens*



## **Results:**

The results for the test pieces can be found in the data table below. The filter paper control pieces had copious fungal growth at Day 14. Temperature and relative humidity were maintained for the duration of the test. These results pertain only to the samples tested.

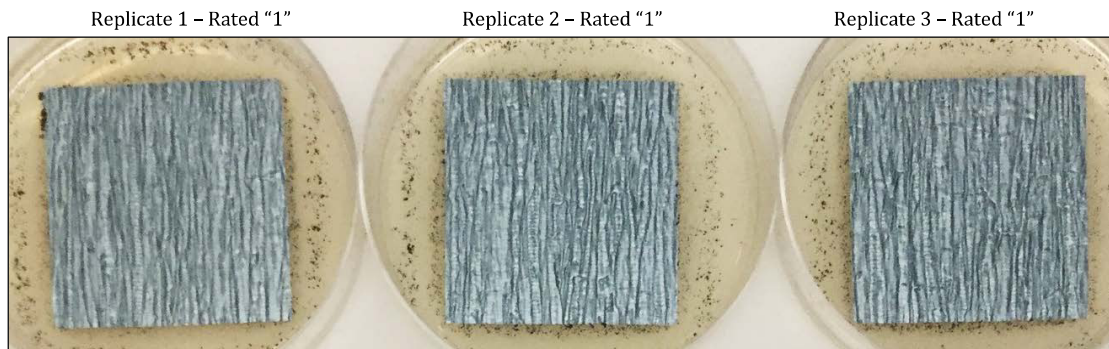
At week 4, samples rating a "0" or "1" were examined microscopically to confirm the ratings.

The rating scale for this test is as follows:

<b>Rating</b>	<b>Observed Growth</b>
0	No Growth
1	Trace of Growth (less than 10% coverage)
2	Light Growth (10-30% coverage)
3	Medium Growth (30-60% coverage)
4	Heavy Growth (60-100% coverage)

<b>Sample Identification</b>	<b>Rep</b>	<b>Week 1</b>	<b>Week 2</b>	<b>Week 3</b>	<b>Week 4</b>
20oz. Printed and Embossed Type II Osnaburg Backed Commercial Vinyl Wallcovering (YM)	1	0	0	0	1
	2	0	0	0	1
	3	0	0	0	1

## **Sample Photos with Fungal Growth:**



**The trace growth on all replicates was only visible at 20X magnification.**