



**CLIENT:** SGS Testing Korea, CO, LTD  
Attn: June Lee  
18-34 Sanbon-Dong  
Gunpo-Si Gyeong  
Korea, Republic Of 435-837

**Report No.:** 001:039622/4

**Date:** 5/07/07

The following samples were submitted by the client as:

1). CS and DX

**SAMPLE DESCRIPTION:** White Fabric

**DATE OF RECEIPT:** 4/03/07

**TESTING PERIOD:** 4/03/07 – 4/30/07


**AUTHORIZATION:** Client's Purchase Order (F690501)

**TESTS REQUESTED:** Fungal Resistance Testing, ASTM G-21  
Bacterial Resistance Testing, ASTM G-22

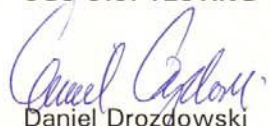
**TEST RESULTS:** Page 3-4

**SUMMARY:** The submitted sample was found to be fungus and bacteria resistant when tested as specified.

**PREPARED BY:**

  
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Supervisor, Microbiology

**SIGNED FOR AND ON BEHALF OF  
SGS U.S. TESTING COMPANY INC.**

  
Daniel Drozdowski  
Manager, Microbiology

/cp

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**PROCEDURE:**

**A. ASTM G-21**

The testing was conducted in accordance with the procedures outlined in ASTM G-21-96, "Determining Resistance of Synthetic Polymeric Materials to Fungi".

The samples were placed on a mineral salts medium and sprayed with a combined Inoculum of the following spore suspensions.

<u>Organism</u>	<u>ATCC #</u>
<i>Aspergillus niger</i>	9642
<i>Penicillium funiculosum</i>	11797
<i>Chaetomium globosum</i>	6205
<i>Gliocladium virens</i>	9645
<i>Aureobasidium pullulans</i>	15233

After inoculation with the above organisms, samples were evaluated by rating the extent of developing visible growth (including microscopic growth). Samples and controls were placed in a "tropical test chamber" and incubated at a temperature of  $30 \pm 1$  °C and relative humidity greater than 85%. The total incubation period was 28 days.

**B. ASTM G-22**

The testing was conducted in accordance with the procedures outlined in ASTM G-22-96, "Standard Practice For Determining Resistance of Plastics to Bacteria".

The samples were placed on a mineral salts medium and inoculated with the test organism *Pseudomonas aeruginosa*, ATCC #13388. The test sample and controls were then incubated 21 days at 35° - 37°C.

Samples were evaluated by rating the development and extent of microbial growth on the sample or in the surrounding medium.



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TEST RESULTS:

A. ASTM G-21

Evaluation of Fungal Growth

<u>Sample</u>	<u>Replicates</u>	<u>Day 0</u>	<u>Day 7</u>	<u>Day 14</u>	<u>Day 21</u>	<u>Day 28</u>
CS and DX	1	0	0	0	0	0
	2	0	0	0	0	0
	3	0	0	0	0	0
<u>Test Controls</u>						
Positive (paper/cork)		0	4/3	4/3	4/3	4/3
Positive (viability)		0	4	4	4	4
Negative (glass slide)		0	0	0	0	0

ASTM Rating

Observed Growth on Specimens

0	None
1	Traces of Growth (less than 10%)
2	Light Growth (10-30%)
3	Medium Growth (30-60%)
4	Heavy Growth (60% to complete coverage)

**Summary:**

The submitted sample did not support fungal growth.

The positive and viability controls supported heavy growth, while the negative did not support growth, thus validating the test procedure.



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TEST RESULTS (cont'd):

B. ASTM G-22

Evaluation of Bacterial Growth

<u>Sample</u>	<u>Replicates</u>	<u>Day 0</u>	<u>Day 7</u>	<u>Day 14</u>	<u>Day 21</u>
CS and DX	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
<u>Test Controls</u>					
Positive (vinyl)		0	3	4	4
Positive (viability)		0	4	4	4
Negative (glass slide)		0	0	0	0

All control ratings confirmed as *Pseudomonas aeruginosa*, the test organism.

**Summary:**

The submitted sample did not support bacterial growth of the test organism.

The positive control supported heavy growth, while the negative did not, thus validating the test results.

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End of Report