

FINAL REPORT

Determining the Activity of Incorporated Antimicrobial Agents

PROTOCOL
ASTM G21

ORDER Number
371112093

PREPARED FOR:

K-Flex USA, LLC
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Certificate of Analysis

Client: K-Flex USA, LLC

Contact: Biju Thomas

Project: ASTM G21 Fungal Resistance

Product : K-Flex ST

EMSL NO: 371112093

Sample received: 9/15/2011

Start date: 9/16/2011

Report date: 10/13/2011

Challenge Fungi:

<i>Aspergillus niger</i>	<i>Chaetomium globosum</i>	<i>Gliocladium virens</i>
<i>Aureobasidium pullulans</i>	<i>Penicillium chrysogenum</i>	

Experimental Summary: The testing procedure was designed after discussions between EMSL Analytical, the testing company, and the client, K-Flex USA, LLC. The testing procedure is based on ASTM G21, with the testing conducted on K-Flex ST submitted by K-Flex for its ability to resist fungi. The testing was conducted in our Cinnaminson Microbiology Laboratory.

Procedure:

G21:

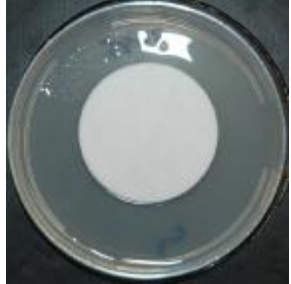
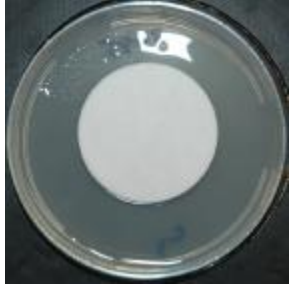
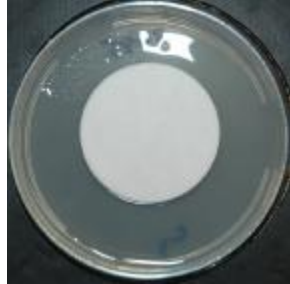
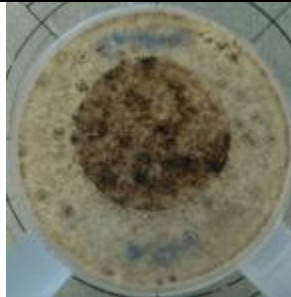

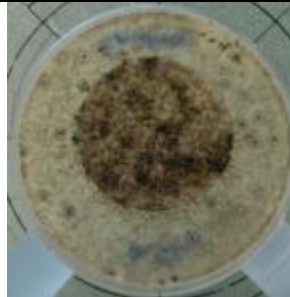
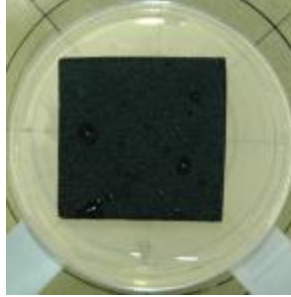
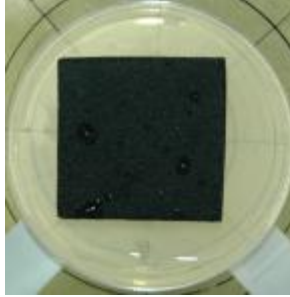
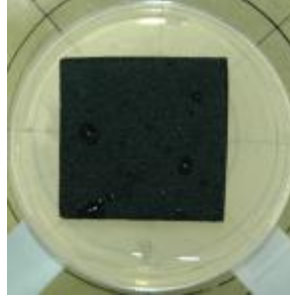
Individual 2"x2" cm² K-FLEX ST foam coupons and control coupons were prepared in triplicate. Fungal species were grown separately on Malt Extract Agar (MEA) for 7 days. Spores were collected by adding 1 mL of tween 80, scraping the spores free, and pouring the spore solution into 9 mL of distilled water. Spore solutions were washed three times in DI water, followed by centrifugation and dilution to achieve a 1.0x10⁶ spore suspension for each fungal species. Spore suspensions were then combined using equal volumes. Test coupons and control coupons were placed separately onto Nutrient-Salts agar and 1 mL of mixed spore suspension was sprayed onto each material. Plates were incubated at 25°C for 28 days. All tests were performed in triplicate. Pictures were taken before and after to show comparison of fungal growth on test and control materials. Results are reported according to the following rating system:

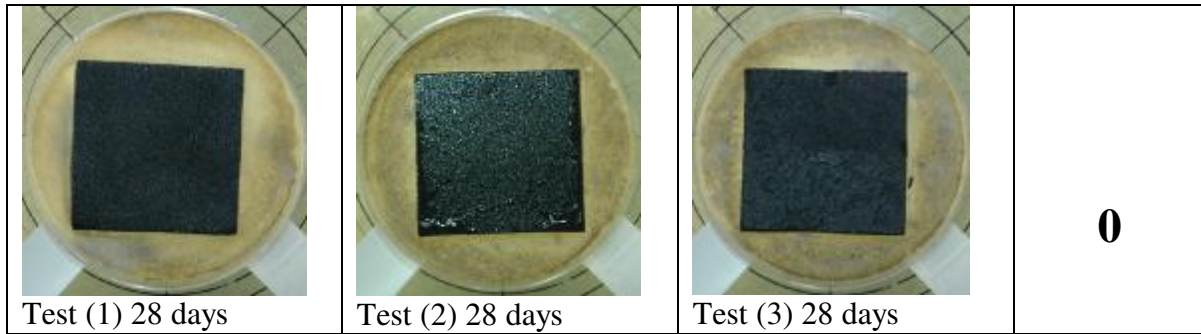


Observed Growth on Specimens	Rating
None	0
Traces of growth (less than 10%)	1
Light growth (10 – 30%)	2
Medium growth (30 – 60%)	3
Heavy growth (60 – 100%)	4

Experimental Results:

Table 1.2 G22 Photos

			Average Growth Rating 0
Control (1) 0 Time	Control (2) 0 Time	Control (3) 0 Time	
			4
Control (1) 28 days	Control (2) 28 days	Control (3) 28 days	
			0
Test (1) 0 Time	Test (2) 0 Time	Test (3) 0 Time	



Conclusions/Observations:

The test material, K-Flex ST, sent in by K-Flex USA, LLC was tested under ASTM G21 protocol to determine the resistance against fungal growth. After 28 days of incubation K-Flex ST demonstrated resistance to fungal growth, with a rating of 0. Test samples 2 and 3 had a noticeable area of inhibition (Table 1.2). In conclusion, the test material (K-Flex ST) was observed to resist fungal growth with a rating of 0 (no observed growth on the test material), and an area of inhibition as compared to the control which had a rating of 4 (heavy growth).

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