

Antifungal and Antibacterial Properties of KYDEX® Sheet

For information applicable to KYDEX® FST please refer to 300 series technical briefs.

TB - 120-C

Introduction

KYDEX® sheet resists bacteriological and fungal development which makes it ideal for use in hospitals, food industry, etc. It does not readily provide a source of nutrients for bacteria and fungi. One source of these nutrients come from an additive known as a plasticizer, which in most cases will support microbial growth. Since it does not contain plasticizers, the main source of nutrients is removed and it performs very well when tested for bacterial and fungal growth.

KYDEX® sheet was subjected to fungus resistance testing in accordance with ASTM G-21 and bacteria resistance testing in accordance with ASTM G-22, Procedure B. Testing was performed by Truesdail Laboratories, Inc., located in Tustin, California. The KYDEX® sheet samples did not allow any fungus or bacteria growth.

The following test results show that KYDEX® sheet performs exceptionally when exposed to bacteria and fungus, without the addition of an antimicrobial additive.

Eighteen day cultures of the following pure culture fungi were harvested, washed and their spore counts adjusted to 1,000,000 ($\pm 200,000$ per ml).

I) Fungus Resistance Testing, ASTM G-21

Organism	ATCC Number
Aspergillus niger	9642
Penicillium pinophilum	11797
Gliocladium virans	9645
Aureobasidium pullulans	15233
Chaetomium globosum	6205

The spore suspensions were combined and sprayed on the samples and controls which were placed on mineral salts agar and placed in the test chamber. The samples, along with controls were incubated for 28 days and examined weekly.

Sample Designation	Observations (Rating*)			
	7 Days	14 Days	21 Days	28 Days
Thermoplastic Sheet:				
# 1	0	0	0	0
# 2	0	0	0	0
# 3	0	0	0	0
# 4	0	0	0	0
Controls:				
Filter Paper	4	4	4	4
Glass Slides	0	0	0	0

*Rating: 0=no growth. 1=traces, 2=light, 3=moderate, 4=heavy growth

Conclusion of Fungus Resistance Testing:

The KYDEX® sheet samples did not allow any fungus growth (rating of 0).

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II) Bacteria Resistance Testing, ASTM G-22

A twenty-four hour culture of *Pseudomonas aeruginosa* (ATCC 13388) was harvested and washed three times by centrifugation using sterile distilled water. The bacterial suspension was added to sterile, melted minerals salts agar, mixed and plates poured. A sample of the inoculated agar was taken and a plate count to determine the number of viable *Pseudomonas* present.

Sample Designation	Observations (Rating*)		
Thermoplastic Sheet:	7 Days	14 Days	21 Days
# 1	0	0	0
# 2	0	0	0
# 3	0	0	0
# 4	0	0	0
Controls:			
Inoculated Agar	0	0	0
Glass Slides	0	0	0
Plate Count Agar	1	1	1

*Rating: 0=no growth, 1=growth

Conclusion of Bacteria Resistance Testing:

The KYDEX® sheet samples did not allow any bacterial growth (rating of 0).

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