

# Informationen

## zu Stoffen mit fungizider und antibakterieller Ausrüstung

**Allgemein** Innerhalb der umfangreichen Kollektion von Sonnenschutzstoffen für den Objektbereich bietet Erfal spezielle Lösungen für den Einsatz an Orten mit erhöhten Hygieneansprüchen wie Krankenhäusern, Arztpraxen, Pflegeeinrichtungen und Feuchträumen an.

Besonders in medizinischen Einrichtungen gilt es, Bakterien abzuwehren bzw. diese am Wachstum zu hindern. Der Schutz von Textilien vor Schimmelpilzbefall, vor allem in Nassbereichen, vermeidet unerwünschte Flecken, Verfärbungen und Geruchsbelästigungen und senkt gleichzeitig das gesundheitliche Risiko durch allergieauslösende Sporen.

Bei diesen Produkten für den innen liegenden Sonnenschutz werden Bakteriostatika und Fungistatika eingesetzt. Das heißt, im Gegensatz zu Bakteriziden und Fungiziden werden hier die ungewünschten Organismen nicht primär vernichtet, sondern an ihrer Ausbreitung gehindert.

Getestet wurde beispielhaft die Wirksamkeit gegenüber 3 der am häufigsten vorkommenden potentiellen Krankheitserreger. Die Vergleichsaufnahmen der Materialien mit und ohne die spezielle Behandlung zeigen deutlich, wie effektiv die Ausbreitung dieser Organismen gestoppt werden kann.

**Stoff** dayton                      Farb.-Nr.                      227.xx

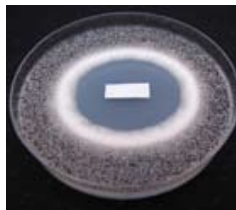
**Datum** 05.07.2007

**Bestätigung** Die Wirksamkeit der Ausrüstung auf die relevanten Keimstämme wurde für folgende Bakterien und Pilze nach den genannten Standards vom Hersteller des Wirkstoffs getestet. Regelmäßige Nachtests in den werkseigenen Labors garantieren einen gleichmäßigen Schutz über alle gefertigten Chargen.

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Keimarten</b></p> <ul style="list-style-type: none"><li>• Staphylococcus aureus ATCC 6538</li><li>• Aspergillus niger ATCC 6275</li><li>• Bacillus subtilis IPP 5262</li><li>• Aspergillus flavus DSM 1959</li><li>• Escherichia coli ATCC 11229</li><li>• Aspergillus terreus ATCC 10020</li><li>• Klebsiella pneumoniae ATCC 4352</li><li>• Candida albicans ATCC 10231</li><li>• Pseudomonas aeruginosa ATCC 15442</li><li>• Chaetomium globosum EMPA 1</li></ul> | <ul style="list-style-type: none"><li>• Proteus mirabilis ATCC 14153</li><li>• Humicola grisea ATCC 16298</li><li>• Proteus vulgaris ATCC 6896</li><li>• Penicillium funiculosum EMPA 112</li><li>• Salmonella choleraesuis NCTC 10789</li><li>• Stachybotris chartarum (atra) EMPA 402</li><li>• Streptococcus faecalis IPP 5855</li><li>• Trichoderma viride EMPA 113</li><li>• Trichophyton mentagrophytes EMPA 334</li></ul> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

# Prüfung der fungistatischen und antibakteriellen Eigenschaften\*:

**Aspergillus niger**  
(Schwarzschimmelpilz)



**Mit** fungistatischer Ausrüstung ist **kein** Bewuchs sichtbar.



**Ohne** fungistatischer Ausrüstung ist Bewuchs sichtbar.

**Staphylococcus aureus**  
(Bakterium)



**Mit** bakteriostatischer Ausrüstung ist **kein** Bewuchs sichtbar.



**Ohne** bakteriostatischer Ausrüstung ist Bewuchs sichtbar.

**Escherichia coli**  
(Bakterium)



**Mit** bakteriostatischer Ausrüstung ist **kein** Bewuchs sichtbar.



**Ohne** bakteriostatischer Ausrüstung ist Bewuchs sichtbar.

\* Prüfung der fungistatischen Eigenschaften nach AATCC 30, Prüfung der antibakteriellen Eigenschaften nach AATCC 147.

Jörg Erler  
Geschäftsführer

erfal steht für Qualität Made in Germany.

Um eine lange Lebensdauer unter Wahrung der ursprünglichen Produkteigenschaften zu gewährleisten, sollten Sie die mitgelieferten Pflege- und Reinigungsmöglichkeiten unbedingt beachten.  
Bei Fragen zur Pflege unserer Stoffe melden Sie sich bitte bei:

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**CLIENT:** SGS Testing Korea, CO, LTD  
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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). Alkenz Sunshadow

**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:**

  
Erin Ricciardi  
Supervisor, Microbiology

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

  
Daniel Drozdowski  
Manager, Microbiology

/cp

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CLIENT: SGS Testing Korea

**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  $30 \pm 1^\circ\text{C}$  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  $35^\circ - 37^\circ\text{C}$ .

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> |
|---------------|-------------------|--------------|--------------|---------------|---------------|---------------|
| Alkenz        | 1                 | 0            | 0            | 0             | 0             | 0             |
| Sunshadow     | 2                 | 0            | 0            | 0             | 0             | 0             |
|               | 3                 | 0            | 0            | 0             | 0             | 0             |

Test Controls

|                        |   |     |     |     |     |
|------------------------|---|-----|-----|-----|-----|
| 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> |
|------------------------|-------------------|--------------|--------------|---------------|---------------|
| Alkenz                 | 1                 | 0            | 0            | 0             | 0             |
| Sunshadow              | 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.

\*\*\*\*\*

End of Report