SUMMARY OF RESULTS:

Test Substance: NZMOLD Disinfectant, Lot # 08072009, 7/08/09
NZMOLD Disinfectant, Product # 1002, Sample Date July 15, 2009
NZMOLD Disinfectant, Product # 1002, Sample Date September 21, 2009

Bacteria: Staphylococcus aureus, ATCC # 6538 and Salmonella enterica ATCC # 10708

Surface Disinfection: When tested against Staphylococcus aureus, ATCC # 6538 and Salmonella enterica, ATCC # 10708 in the presence of a 5% organic soil load, complete kill of the microorganism was achieved on (60) 1" x 1" glass carriers in 10 minutes contact time for each of the (3) sample lots tested.

TEST SYSTEM

Bacteria

The Staphylococcus aureus, ATCC # 6538 and Salmonella enterica, ATCC # 10708 strains were obtained from the American Type Culture Collection. Purity of the Staphylococcus aureus, ATCC # 6538 and Salmonella enterica, ATCC # 10708 cultures were determined by macroscopic and microscopic morphology.

Test Media

Test media used in this study consisted of AOAC Letheen Broth.

METHODS

1. Preparation of Test Substance

   The test articles were tested as received. No further preparation of the test articles was necessary.

2. Preparation of the Test Cultures and Carriers

   2.1 The Staphylococcus aureus, ATCC # 6538 and Salmonella enterica, ATCC # 10708 strains were prepared per AOAC 6.3.04, Section C. Operating Technique. A 48 hour Nutrient Broth culture containing a 5% organic soil load was used for inoculating glass carriers. Each 1" x 1" slide was inoculated with 0.01mL of the suspension using an Eppendorf pipette with sterile tips. The inoculum was applied and uniformly spread over the entire area. The slides were dried for 40 minutes at 36 +/- 1°C. Carrier microorganism levels after drying were determined to be > 10⁴ CFU/carrier.

3. Performance of the Spraying of the Carriers

   3.1 Each of 60 slides was sprayed at a distance of 1 foot using a 10 second spray interval between slides. After spraying, each slide was allowed to remain wet for 10 minutes at ambient room temperature.

   3.2 After the 10 minutes contact time, each slide was drained and transferred to 20mL of Letheen Broth neutralizer subculture medium and was shaken briefly. The primary neutralizer subculture medium was incubated for a minimum of 30 minutes at 36 +/- 1°C. After the incubation, the slides were aseptically transferred to 20mL of secondary Letheen Broth subculture media.

   3.3 Primary and secondary subculture Letheen Broth media were incubated at 36 +/- 1°C for 48 +/- 2 hours. Results were scored as growth (+) or no growth (0). Positive control carriers were transferred to subculture media in duplicate and incubated as above.
3.4 To demonstrate the absence of residual antimicrobial effect in the subculture medium, 5 - 100 CFU/0.1mL of the test organism were added to primary and secondary tubes of the subculture medium containing the same concentration of antimicrobial as would be encountered in the test. Growth in these tubes after 36 +/- 1°C for 48 +/- 2 hours confirmed neutralizer effectiveness.

3.5 A dry carrier count was conducted on the test slides to determine the number of organisms present on the carriers. Nutrient Agar was used as the recovery medium with incubation at 36 +/- 1°C for 48 +/- 2 hours.

3.6 Sterility controls were run on all media and materials, and were found to be negative for growth.

4. Statistical Methods: N/A

5. Results

5.1 To be considered valid, results must meet standard effectiveness: complete kill of the test microorganisms on the (60) glass 1" x 1" carriers at the proposed contact time.

ANALYSIS AND CONCLUSIONS

Results of the (3) lots of NZMold Disinfectant tested versus the (60) 1" x 1" glass carriers inoculated with Staphylococcus aureus, ATCC # 6538 and Salmonella enterica, ATCC # 10708 are shown in the Tables 1 - 6.

When tested against Staphylococcus aureus, ATCC # 6538 and Salmonella enterica, ATCC # 10708 in the presence of a 5% organic soil load, complete kill of the microorganism was achieved on (60) 1" x 1" glass carriers in 10 minutes contact time for each of the (3) sample lots tested.
SUMMARY OF RESULTS:

Test Substance: NZMOLD Disinfectant, Lot # 08072009, 7/08/09
NZMOLD Disinfectant, Lot # 08072009, 7/08/09
NZMOLD Disinfectant, Product # 1002, Sample Date July 15, 2009
NZMOLD Disinfectant, Product # 1002, Sample Date September 21, 2009

Bacteria: Pseudomonas aeruginosa ATCC # 15442

Surface Disinfection: When tested against Pseudomonas aeruginosa ATCC # 15442 in the presence of a 5% organic soil load, complete kill of the microorganism was achieved on (60) 1" x 1" glass carriers in 10 minutes contact time for each of the (3) sample lots tested.

TEST SYSTEM

Bacteria
The Pseudomonas aeruginosa, ATCC # 15442 strain was obtained from the American Type Culture Collection. Purity of the Pseudomonas aeruginosa ATCC # 15442 culture was determined by macroscopic and microscopic morphology.

Test Media
Test media used in this study consisted of AOAC Letheen Broth.

METHODS

1. Preparation of Test Substance
   The test articles were tested as received. No further preparation of the test articles was necessary.

2. Preparation of the Test Cultures and Carriers
   2.1 The P. aeruginosa culture was prepared per AOAC 6.3.04, Section C. Operating Technique. A 48 hour Nutrient Broth culture containing a 5% organic soil load was used for inoculating glass carriers. Each 1" x 1" slide was inoculated with 0.01mL of the suspension using an Eppendorf pipette with sterile tips. The inoculum was applied and uniformly spread over the entire area. The slides were dried for 40 minutes at 36 +/- 1°C. Carrier microorganism levels after drying were determined to be > 10^6 CFU/carrier.

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3.4 To demonstrate the absence of residual antimicrobial effect in the subculture medium, 5 - 100 CFU/0.1mL of the test organism were added to primary and secondary tubes of the subculture medium containing the same concentration of antimicrobial as would be encountered in the test. Growth in these tubes after 36 +/- 1°C for 48 +/- 2 hours confirmed neutralizer effectiveness.

3.5 A dry carrier count was conducted on the test slides to determine the number of organisms present on the carriers. Nutrient Agar was used as the recovery medium with incubation at 36 +/- 1°C for 48 +/- 2 hours.

3.6 Sterility controls were run on all media and materials, and were found to be negative for growth.

4. Statistical Methods: N/A

5. Results
5.1 To be considered valid, results must meet standard effectiveness: complete kill of the test microorganisms on the (60) glass 1" x 1" carriers at the proposed contact time.

ANALYSIS AND CONCLUSIONS
Results of the (3) lots of NZMold Disinfectant tested versus the (60) 1" x 1" glass carriers inoculated with *Pseudomonas aeruginosa* ATCC # 15442, are shown in Tables 1 - 3.

When tested against *Pseudomonas aeruginosa* ATCC # 15442 in the presence of a 5% organic soil load, complete kill of the microorganism was achieved on (60) 1" x 1" glass carriers in 10 minutes contact time for each of the (3) sample lots tested.
**FINAL STUDY REPORT SUMMARY**

**Study Title**  
Disinfectant Efficacy Test using the AOAC Germicidal Spray Method

**Study Identification Number**  
GLP1146

**Protocol Number**  
P1141

**Test Microorganism**  
*T. mentagrophytes* ATCC 9533

**Study Sponsor**  
David Bloom

**Testing Facility**  
Antimicrobial Test Laboratories  
1304 W. Industrial Blvd.  
Round Rock, Texas 78681

**Study Director**  
Benjamin Grosse-Siestrup, Ph.D.

**Study Completion Date**  
11DEC2013

**Study Objective**  
To determine, using the AOAC Germicidal Spray Products as Disinfectants method, the antimicrobial efficacy of the Oceanic Disinfectant Cleaner test product against *Trichophyton mentagrophytes* ATCC 9533 with a 10 minute contact time.

**Study Conclusion in Brief**  
The Oceanic Disinfectant Cleaner test product met the protocol specified disinfection success criteria for Lot # EH-GB16 and for Lot#EH-GB18 with *T. mentagrophytes* ATCC 9533.
RESULTS

Control Carrier Enumeration Results

The following are the untreated carrier control enumeration results for the test microorganism.

<table>
<thead>
<tr>
<th>Microorganism</th>
<th>Replicate Number</th>
<th>CFU/Carrier</th>
<th>Geometric Mean CFU/Carrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>T. mentagrophytes ATCC 9533</td>
<td>1 (pre test)</td>
<td>1.55E+04</td>
<td>2.54E+04</td>
</tr>
<tr>
<td></td>
<td>2 (pre test)</td>
<td>2.45E+04</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 (pre test)</td>
<td>2.45E+04</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 (post test)</td>
<td>2.00E+04</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 (post test)</td>
<td>3.64E+04</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 (post test)</td>
<td>4.00E+04</td>
<td></td>
</tr>
</tbody>
</table>

Test Carrier Results

The following are the results from the test carriers.

<table>
<thead>
<tr>
<th>Microorganism</th>
<th>Soil Load</th>
<th>Contact Time</th>
<th>Test Substance Lot</th>
<th>1st Neutralization</th>
<th>2nd Neutralization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Carriers Positive</td>
<td>Carriers Negative</td>
</tr>
<tr>
<td>T. mentagrophytes ATCC 9533</td>
<td>5% Fetal Bovine Serum</td>
<td>10 minutes</td>
<td>EH-GB 16</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EH-GB 18</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EH-GB 18</td>
<td>0</td>
<td>10</td>
</tr>
</tbody>
</table>
STUDY CONCLUSION

For Study Identification Number GLP1146, the Oceanic Disinfectant Cleaner test substance met the protocol specified disinfectant success criteria for both Lot # EH-GB 16 and EH-GB 18 against *T. mentagrophytes* ATCC 9533.

This study was carried out in compliance with the approved Protocol Number P1141. All experimental controls met the established acceptance criteria.

REFERENCES